

OM-1321 197 953M

2005−09

Processes



MIG (GMAW) Welding

Flux Cored (FCAW) Welding

Description

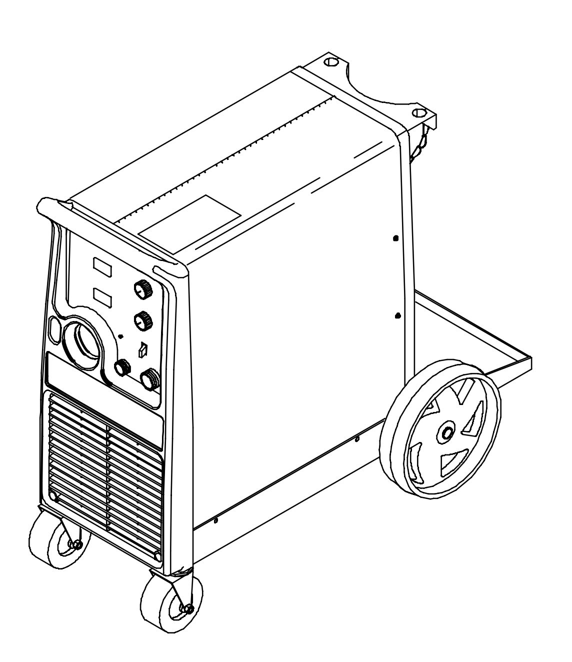




Arc Welding Power Source
and Wire Feeder

Millermatic® 300

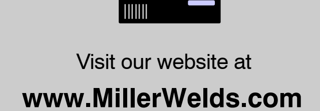
With Meters



OWNER'S MANUAL

File: MIG (GMAW)





Visit our website at

www.MillerWelds.com

From Miller to You

Thank you and *congratulations* on choosing Miller. Now you can get the job done and get it done right. We know you don't have time to do it any other way.

That's why when Niels Miller first started building arc welders in 1929, he made sure his products offered long-lasting value and superior quality. Like you, his customers couldn't afford anything less. Miller products had to be more than the best they could be. They had to be the best you could buy.

Today, the people that build and sell Miller products continue the tradition. They're just as committed to providing equipment and service that meets the high standards of quality and value established in 1929.

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite. We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide the exact part you may need to fix the problem. Warranty and service information for your particular model are also provided.



Miller is the first welding equipment manufacturer in the U.S.A. to be registered to the ISO 9001:2000 Quality System Standard.

Miller Electric manufactures a full line of welders and welding related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual specification sheets. **To locate your nearest distributor or service agency call 1-800-4-A-Miller, or visit us at www.MillerWelds.com on the web.**



Working as hard as you do – every power source from Miller is backed by the most hassle-free warranty in the business.



TABLE OF CONTENTS

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

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▲ **Warning: Protect yourself and others from injury — read and follow these precautions.**

1-1. Symbol Usage



Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.

▲ **Marks a special safety message.**

☞ *Means “Note”; not safety related.*

This group of symbols means Warning! Watch Out! possible ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

1-2. Arc Welding Hazards

▲ **The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-5. Read and follow all Safety Standards.**

▲ **Only qualified persons should install, operate, maintain, and repair this unit.**

▲ **During operation, keep everybody, especially children, away.**



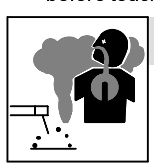
ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Additional safety precautions are required when any of the following electrically hazardous conditions are present: in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the workpiece or ground. For these conditions, use the following equipment in order presented: 1) a semiautomatic DC constant voltage (wire) welder, 2) a DC manual (stick) welder, or 3) an AC welder with reduced open-circuit voltage. In most situations, use of a DC, constant voltage wire welder is recommended. And, do not work alone!
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install and ground this equipment according to its Owner’s Manual and national, state, and local codes.
- Always verify the supply ground – check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first – double-check connections.
- Frequently inspect input power cord for damage or bare wiring – replace cord immediately if damaged – bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will be present.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal.

SIGNIFICANT DC VOLTAGE exists in inverter-type welding power sources after removal of input power.

- Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.



FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use local forced ventilation at the arc to remove welding fumes and gases.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Material Safety Data Sheets (MSDSs) and the manufacturer’s instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

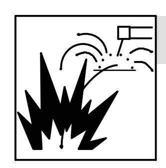
ARC RAYS can burn eyes and skin.



Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash, glare and sparks; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather, heavy cotton, or wool) and foot protection.

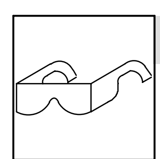
WELDING can cause fire or explosion.



Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Do not weld where flying sparks can strike flammable material.
- Protect yourself and others from flying sparks and hot metal.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock, sparks, and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.
- Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.

FLYING METAL can injure eyes.



- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.

BUILDUP OF GAS can injure or kill.



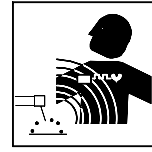
- Shut off shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

HOT PARTS can cause severe burns.



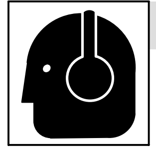
- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.

MAGNETIC FIELDS can affect pacemakers.



- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.

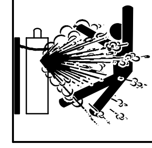
NOISE can damage hearing.



Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

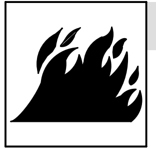
CYLINDERS can explode if damaged.



Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder – explosion will result.
- Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.
- Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

1-3. Additional Symbols For Installation, Operation, And Maintenance



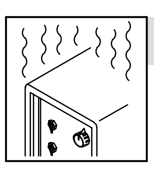
FIRE OR EXPLOSION hazard.

- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring – be sure power supply system is properly sized, rated, and protected to handle this unit.



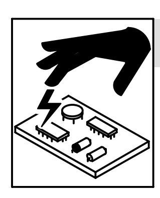
FALLING UNIT can cause injury.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.



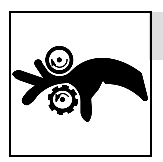
OVERUSE can cause OVERHEATING

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.



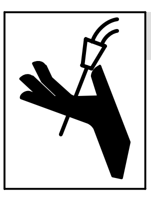
STATIC (ESD) can damage PC boards.

- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.



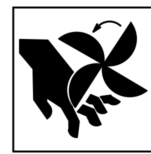
MOVING PARTS can cause injury.

- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.



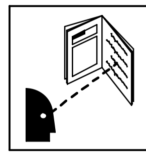
WELDING WIRE can cause injury.

- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.



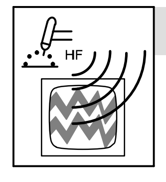
MOVING PARTS can cause injury.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.



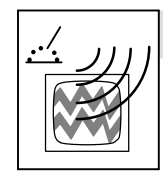
READ INSTRUCTIONS.

- Read Owner's Manual before using or servicing unit.
- Use only genuine Miller/Hobart replacement parts.



H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.



ARC WELDING can cause interference.

- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

1-4. California Proposition 65 Warnings

▲ **Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)**

▲ **Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.**

For Gasoline Engines:

▲ **Engine exhaust contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.**

For Diesel Engines:

▲ **Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**

1-5. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping, American Welding Society Standard AWS F4.1 from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269−9101 (phone: 617−770−3000, website: www.nfpa.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1735 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202−4102 (phone: 703−412−0900, website: www.cganet.com).

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3 (phone: 800−463−6727 or in Toronto 416−747−4044, website: www.csa−international.org).

Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 11 West 42nd Street, New York, NY 10036−8002 (phone: 212−642−4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269−9101 (phone: 617−770−3000, website: www.nfpa.org).

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250 (there are 10 Regional Offices−−phone for Region 5, Chicago, is 312−353−2220, website: www.osha.gov).

1-6. EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

Welding current, as it flows through welding cables, will cause electromagnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: "The body of evidence, in the committee's judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard." However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld as possible.

About Pacemakers:

Pacemaker wearers consult your doctor before welding or going near welding operations. If cleared by your doctor, then following the above procedures is recommended.

SECTION 2 – CONSIGNES DE SÉCURITÉ – LIRE AVANT UTILISATION

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▲ **Avertissement : se protéger et protéger les autres contre le risque de blessure — lire et respecter ces consignes.**

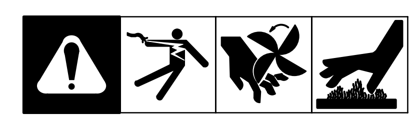
2-1. Symboles utilisés



Symbole graphique d'avertissement ! Attention ! Cette procédure comporte des risques possibles ! Les dangers éventuels sont représentés par les symboles graphiques joints.

▲ **Indique un message de sécurité particulier**

☞ *Signifie NOTE ; n'est pas relatif à la sécurité.*



Ce groupe de symboles signifie Avertissement ! Attention ! Risques d'ÉLECTROCUTION, ORGANES MOBILES et PARTIES CHAUDES. Consulter les symboles et les instructions afférentes ci-dessous concernant les mesures à prendre pour supprimer les dangers.

2-2. Dangers relatifs au soudage à l'arc

▲ **Les symboles représentés ci-dessous sont utilisés dans ce manuel pour attirer l'attention et identifier les dangers possibles. En présence de l'un de ces symboles, prendre garde et suivre les instructions afférentes pour éviter tout risque. Les instructions en matière de sécurité indiquées ci-dessous ne constituent qu'un sommaire des instructions de sécurité plus complètes fournies dans les normes de sécurité énumérées dans la Section 2-5. Lire et observer toutes les normes de sécurité.**

▲ **Seul un personnel qualifié est autorisé à installer, faire fonctionner, entretenir et réparer cet appareil.**

▲ **Pendant le fonctionnement, maintenir à distance toutes les personnes, notamment les enfants de l'appareil.**



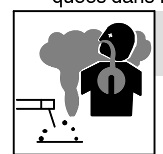
UNE DÉCHARGE ÉLECTRIQUE peut entraîner la mort.

Le contact d'organes électriques sous tension peut provoquer des accidents mortels ou des brûlures graves. Le circuit de l'électrode et de la pièce est sous tension lorsque le courant est délivré à la sortie. Le circuit d'alimentation et les circuits internes de la machine sont également sous tension lorsque l'alimentation est sur Marche. Dans le mode de soudage avec du fil, le fil, le dérouleur, le bloc de commande du rouleau et toutes les parties métalliques en contact avec le fil sont sous tension électrique. Un équipement installé ou mis à la terre de manière incorrecte ou impropre constitue un danger.

- Ne pas toucher aux pièces électriques sous tension.
- Porter des gants isolants et des vêtements de protection secs et sans trous.
- S'isoler de la pièce à couper et du sol en utilisant des housses ou des tapis assez grands afin d'éviter tout contact physique avec la pièce à couper ou le sol.
- Ne pas se servir de source électrique à courant électrique dans les zones humides, dans les endroits confinés ou là où on risque de tomber.
- Se servir d'une source électrique à courant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique à courant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.
- D'autres consignes de sécurité sont nécessaires dans les conditions suivantes : risques électriques dans un environnement humide ou si l'on porte des vêtements mouillés ; sur des structures métalliques telles que sols, grilles ou échafaudages ; en position coincée comme assise, à genoux ou couchée ; ou s'il y a un risque élevé de contact inévitable ou accidentel avec la pièce à souder ou le sol. Dans ces conditions, utiliser les équipements suivants, dans l'ordre indiqué : 1) un poste à souder DC à tension constante (à fil), 2) un poste à souder DC manuel (électrode) ou 3) un poste à souder AC à tension à vide réduite. Dans la plupart des situations, l'utilisation d'un poste à souder DC à fil à tension constante est recommandée. En outre, ne pas travailler seul !
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Installer le poste correctement et le mettre à la terre convenablement selon les consignes du manuel de l'opérateur et les normes nationales, provinciales et locales.
- Toujours vérifier la terre du cordon d'alimentation. Vérifier et s'assurer que le fil de terre du cordon d'alimentation est bien raccordé à la borne de terre du sectionneur ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée, fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Vérifier fréquemment le cordon d'alimentation afin de s'assurer qu'il n'est pas altéré ou à nu, le remplacer immédiatement s'il l'est. Un fil à nu peut entraîner la mort.
- L'équipement doit être hors tension lorsqu'il n'est pas utilisé.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- Ne pas toucher des porte électrodes connectés à deux machines en même temps à cause de la présence d'une tension à vide doublée.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité si l'on doit travailler au-dessus du sol.
- S'assurer que tous les panneaux et couvercles sont correctement en place.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.
- Ne pas raccorder plus d'une électrode ou plus d'un câble de masse à une même borne de sortie de soudage.

Il reste une TENSION DC NON NÉGLIGEABLE dans les sources de soudage onduleur quand on a coupé l'alimentation.

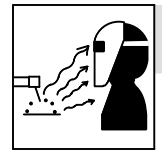
- Arrêter les convertisseurs, débrancher le courant électrique et décharger les condensateurs d'alimentation selon les instructions indiquées dans la partie Entretien avant de toucher les pièces.



LES FUMÉES ET LES GAZ peuvent être dangereux.

Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereuse pour la santé.

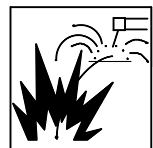
- Ne pas mettre sa tête au-dessus des vapeurs. Ne pas respirer ces vapeurs.
- À l'intérieur, ventiler la zone et/ou utiliser une ventilation forcée au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage.
- Si la ventilation est médiocre, porter un respirateur anti-vapeurs approuvé.
- Lire et comprendre les spécifications de sécurité des matériaux (MSDS) et les instructions du fabricant concernant les métaux, les consommables, les revêtements, les nettoyants et les dégraisseurs.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit bien ventilé et en portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.



LES RAYONS D'ARC peuvent entraîner des brûlures aux yeux et à la peau.

Le rayonnement de l'arc du procédé de soudage génère des rayons visibles et invisibles intenses (ultraviolets et infrarouges) susceptibles de provoquer des brûlures dans les yeux et sur la peau. Des étincelles sont projetées pendant le soudage.

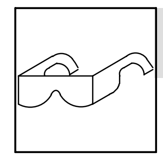
- Porter un casque de soudage approuvé muni de verres filtrants approprié pour protéger visage et yeux pendant le soudage (voir ANSI Z49.1 et Z87.1 énuméré dans les normes de sécurité).
- Porter des lunettes de sécurité avec écrans latéraux même sous votre casque.
- Avoir recours à des écrans protecteurs ou à des rideaux pour protéger les autres contre les rayonnements les éblouissements et les étincelles ; prévenir toute personne sur les lieux de ne pas regarder l'arc.
- Porter des vêtements confectionnés avec des matières résistantes et ignifuges (cuir, coton lourd ou laine) et des bottes de protection.



LE SOUDAGE peut provoquer un incendie ou une explosion.

Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds peuvent provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, une surchauffe ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité, les recouvrir soigneusement avec des protections homologuées.
- Ne pas souder dans un endroit où des étincelles peuvent tomber sur des substances inflammables.
- Se protéger, ainsi que toute autre personne travaillant sur les lieux, contre les étincelles et le métal chaud.
- Des étincelles et des matériaux chauds du soudage peuvent facilement passer dans d'autres zones en traversant de petites fissures et des ouvertures.
- Afin d'éliminer tout risque de feu, être vigilant et garder toujours un extincteur à la portée de main.
- Le soudage effectué sur un plafond, plancher, paroi ou séparation peut déclencher un incendie de l'autre côté.
- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 (voir les normes de sécurité).
- Brancher le câble de masse sur la pièce le plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels en provoquant des risques d'électrocution, d'étincelles et d'incendie.
- Ne pas utiliser le poste de soudage pour dégeler des conduites gelées.
- En cas de non-utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter des vêtements de protection exempts d'huile tels que des gants en cuir, une veste résistante, des pantalons sans revers, des bottes et un casque.
- Avant de souder, retirer toute substance combustible de ses poches telles qu'un allumeur au butane ou des allumettes.
- Suivre les consignes de OSHA 1910.252 (a) (2) (iv) et de NFPA 51B pour travaux de soudage et prévoir un détecteur d'incendie et un extincteur à proximité.



DES PARTICULES VOLANTES peuvent blesser les yeux.

- Le soudage, l'écaillement, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux ou un écran facial.



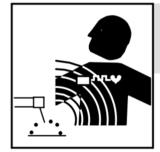
LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.

- Fermer l'alimentation du gaz protecteur en cas de non-utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respirateur d'adduction d'air homologué.



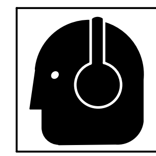
DES PIÈCES CHAUDES peuvent provoquer des brûlures graves.

- Ne pas toucher des parties chaudes à mains nues.
- Prévoir une période de refroidissement avant d'utiliser le pistolet ou la torche.
- Ne pas toucher aux pièces chaudes, utiliser les outils recommandés et porter des gants de soudage et des vêtements épais pour éviter les brûlures.



LES CHAMPS MAGNÉTIQUES peuvent affecter les stimulateurs cardiaques.

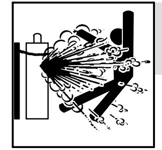
- Porteurs de stimulateur cardiaque, rester à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.



LE BRUIT peut endommager l'ouïe.

Le bruit des processus et des équipements peut affecter l'ouïe.

- Porter des protections approuvées pour les oreilles si le niveau sonore est trop élevé.

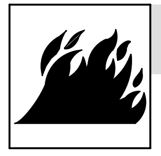


LES BOUTEILLES peuvent exploser si elles sont endommagées.

Des bouteilles de gaz protecteur contiennent du gaz sous haute pression. Si une bouteille est endommagée, elle peut exploser. Du fait que les bouteilles de gaz font normalement partie du procédé de soudage, les manipuler avec précaution.

- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, des dommages physiques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une bouteille à gaz.
- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée – risque d'explosion.
- Utiliser seulement des bouteilles de gaz protecteur, régulateurs, tuyaux et raccords convenables pour cette application spécifique ; les maintenir ainsi que les éléments associés en bon état.
- Détourner votre visage du détendeur-régulateur lorsque vous ouvrez la soupape de la bouteille.
- Le couvercle du détendeur doit toujours être en place, sauf lorsque la bouteille est utilisée ou qu'elle est reliée pour usage ultérieur.
- Utiliser les équipements corrects, les bonnes procédures et suffisamment de personnes pour soulever et déplacer les bouteilles.
- Lire et suivre les instructions sur les bouteilles de gaz comprimé, l'équipement connexe et le dépliant P-1 de la CGA (Compressed Gas Association) mentionné dans les principales normes de sécurité.

2-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance



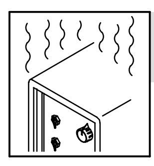
Risque D'INCENDIE OU D'EXPLOSION.

- Ne pas placer l'appareil sur, au-dessus ou à proximité de surfaces inflammables.
- Ne pas installer l'appareil à proximité de produits inflammables.
- Ne pas surcharger l'installation électrique − s'assurer que l'alimentation est correctement dimensionnée et protégée avant de mettre l'appareil en service.



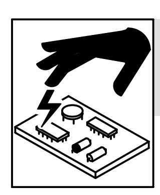
LA CHUTE DE L'APPAREIL peut blesser.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariots, les bouteilles de gaz ou tout autre accessoire.
- Utiliser un équipement de levage de capacité suffisante pour lever l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.



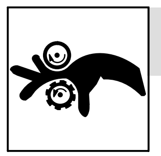
L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Prévoir une période de refroidissement ; respecter le cycle opératoire nominal.
- Réduire le courant ou le facteur de marche avant de poursuivre le soudage.
- Ne pas obstruer les passages d'air du poste.



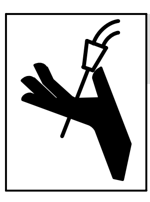
LES CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

- Établir la connexion avec la barrette de terre avant de manipuler des cartes ou des pièces.
- Utiliser des pochettes et des boîtes antistatiques pour stocker, déplacer ou expédier des cartes PC.



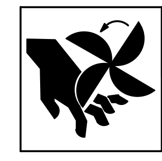
DES ORGANES MOBILES peuvent provoquer des blessures.

- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.



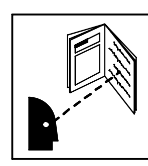
LES FILS DE SOUDAGE peuvent provoquer des blessures.

- Ne pas appuyer sur la gâchette avant d'en avoir reçu l'instruction.
- Ne pas diriger le pistolet vers soi, d'autres personnes ou toute pièce mécanique en engageant le fil de soudage.



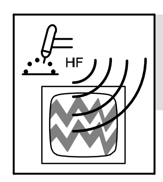
DES ORGANES MOBILES peuvent provoquer des blessures.

- S'abstenir de toucher des organes mobiles tels que des ventilateurs.
- Maintenir fermés et verrouillés les portes, panneaux, recouvrements et dispositifs de protection.
- Seules des personnes qualifiées sont autorisées à enlever les portes, panneaux, recouvrements ou dispositifs de protection pour l'entretien.
- Remettre les portes, panneaux, recouvrements ou dispositifs de protection quand l'entretien est terminé et avant de rebrancher l'alimentation électrique.



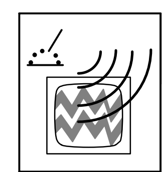
LIRE LES INSTRUCTIONS.

- Lire le manuel d'utilisation avant d'utiliser ou d'intervenir sur l'appareil.
- Utiliser uniquement des pièces de rechange Miller/Hobart.



LE RAYONNEMENT HAUTE FRÉQUENCE (HF) risque de provoquer des interférences.

- Le rayonnement haute fréquence (HF) peut provoquer des interférences avec les équipements de radio-navigation et de communication, les services de sécurité et les ordinateurs.
- Demander seulement à des personnes qualifiées familiarisées avec des équipements électroniques de faire fonctionner l'installation.
- L'utilisateur est tenu de faire corriger rapidement par un électricien qualifié les interférences résultant de l'installation.
- Si le FCC signale des interférences, arrêter immédiatement l'appareil.
- Effectuer régulièrement le contrôle et l'entretien de l'installation.
- Maintenir soigneusement fermés les portes et les panneaux des sources de haute fréquence, maintenir les éclateurs à une distance correcte et utiliser une terre et un blindage pour réduire les interférences éventuelles.



LE SOUDAGE À L'ARC risque de provoquer des interférences.

- L'énergie électromagnétique peut gêner le fonctionnement d'appareils électroniques comme des ordinateurs et des robots.
- Veiller à ce que tout l'équipement de la zone de soudage soit compatible électromagnétiquement.
- Pour réduire la possibilité d'interférence, maintenir les câbles de soudage aussi courts que possible, les grouper, et les poser aussi bas que possible (ex. par terre).
- Veiller à souder à une distance de 100 mètres de tout équipement électronique sensible.
- Veiller à ce que ce poste de soudage soit posé et mis à la terre conformément à ce mode d'emploi.
- En cas d'interférences après avoir pris les mesures précédentes, il incombe à l'utilisateur de prendre des mesures supplémentaires telles que le déplacement du poste, l'utilisation de câbles blindés, l'utilisation de filtres de ligne ou la pose de protecteurs dans la zone de travail.

2-4. Proposition californienne 65 Avertissements

▲ **Les équipements de soudage et de coupage produisent des fumées et des gaz qui contiennent des produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des malformations congénitales et, dans certains cas, des cancers. (Code de santé et de sécurité de Californie, chapitre 25249.5 et suivants)**

▲ **Les batteries, les bornes et autres accessoires contiennent du plomb et des composés à base de plomb, produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des cancers et des malformations congénitales ou autres problèmes de procréation. Se laver les mains après manipulation.**

Pour les moteurs à essence :

▲ **Les gaz d'échappement des moteurs contiennent des produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des cancers et des malformations congénitales ou autres problèmes de procréation.**

Pour les moteurs diesel :

▲ **Les gaz d'échappement des moteurs diesel et certains de leurs composants sont reconnus par l'État de Californie comme provoquant des cancers et des malformations congénitales ou autres problèmes de procréation.**

2-5. Principales normes de sécurité

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, de Global Engineering Documents (téléphone : 1-877-413-5184, site Internet : www.global.ihs.com).

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping, American Welding Society Standard AWS F4.1 de Global Engineering Documents (téléphone : 1-877-413-5184, site Internet : www.global.ihs.com).

National Electrical Code, NFPA Standard 70, de National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (téléphone : 617-770-3000, site Internet : www.nfpa.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, de Compressed Gas Association, 1735 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102 (téléphone : 703-412-0900, site Internet : www.cganet.com).

Code for Safety in Welding and Cutting, CSA Standard W117.2, de Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3 (téléphone : 800-463-6727 ou à Toronto 416-747-4044, site Internet : www.csa-international.org).

Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, de American National Standards Institute, 11 West 42nd Street, New York, NY 10036-8002 (téléphone : 212-642-4900, site Internet : www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, de National Fire Protection Association, P.O. Box 9101, 1 Battery March Park, Quincy, MA 02269-9101 (téléphone : 617-770-3000, site Internet : www.nfpa.org).

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, de U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250 (il y a 10 bureaux régionaux−−le téléphone de la région 5, Chicago, est 312-353-2220, site Internet : www.osha.gov).

2-6. Information EMF

Considérations sur le soudage et les effets de basse fréquence et des champs magnétiques et électriques.

Le courant de soudage, pendant son passage dans les câbles de soudage, causera des champs électromagnétiques. Il y a eu et il y a encore un certain souci à propos de tels champs. Cependant, après avoir examiné plus de 500 études qui ont été faites pendant une période de recherche de 17 ans, un comité spécial ruban bleu du National Research Council a conclu : « L'accumulation de preuves, suivant le jugement du comité, n'a pas démontré que l'exposition aux champs magnétiques et champs électriques à haute fréquence représente un risque à la santé humaine ». Toutefois, des études sont toujours en cours et les preuves continuent à être examinées. En attendant que les conclusions finales de la recherche soient établies, il vous serait souhaitable de réduire votre exposition aux champs électromagnétiques pendant le soudage ou le coupage.

Pour réduire les champs magnétiques sur le poste de travail, appliquer les procédures suivantes :

1. Maintenir les câbles ensemble en les tordant ou en les enveloppant.
2. Disposer les câbles d'un côté et à distance de l'opérateur.
3. Ne pas courber pas et ne pas entourer pas les câbles autour de votre corps.
4. Garder le poste de soudage et les câbles le plus loin possible de vous.
5. Connecter la pince sur la pièce aussi près que possible de la soudure.

En ce qui concerne les stimulateurs cardiaques

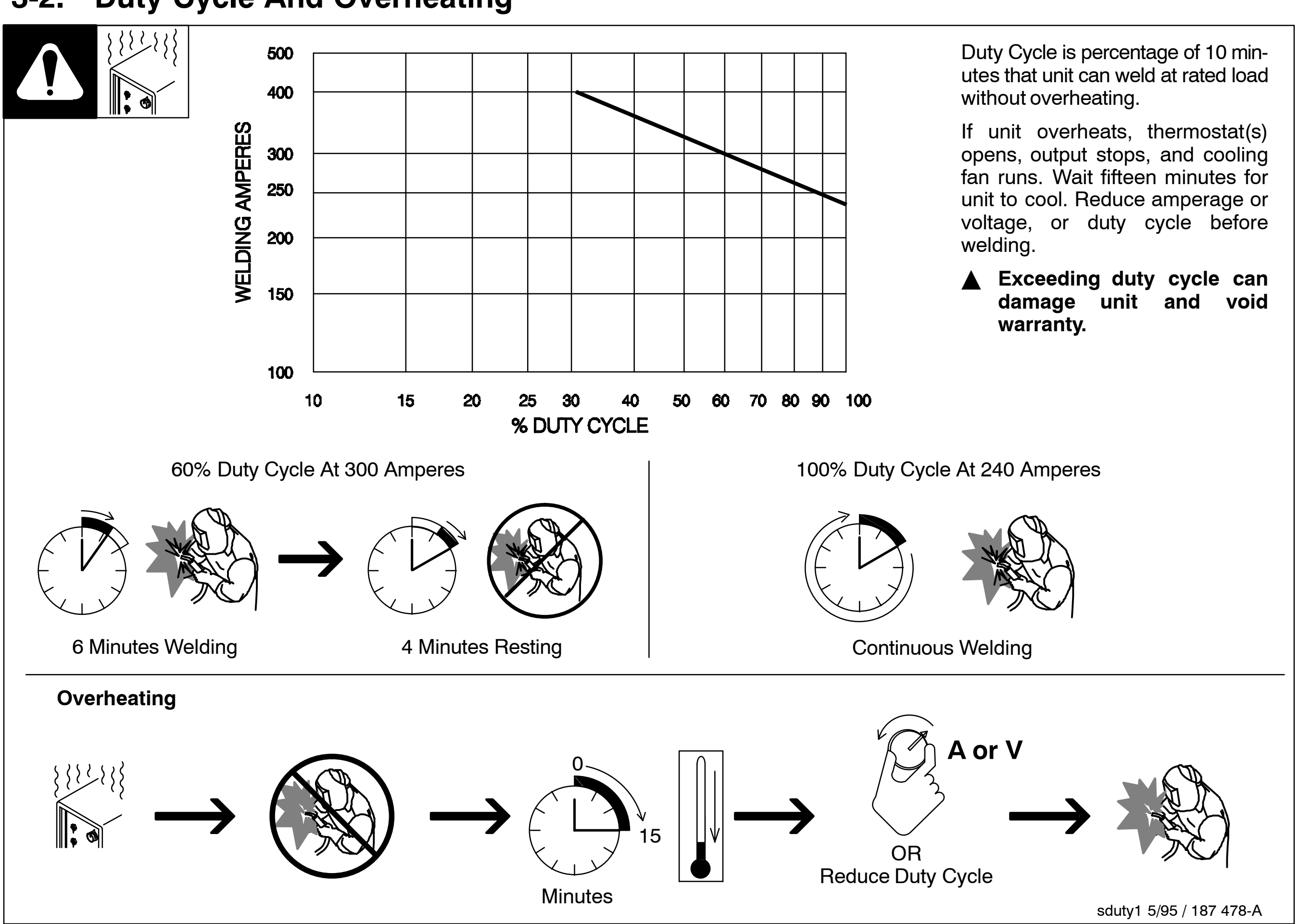
Les porteurs de stimulateur cardiaque doivent consulter leur médecin avant de souder ou d'approcher des opérations de soudage. Si le médecin approuve, il est recommandé de suivre les procédures précédentes.

SECTION 3 – INSTALLATION

3-1. Specifications

Rated Output		Max. Open Circuit Voltage	Amps Input at Rated Output, 60 Hz; Three-Phase					
			200 V	230 V	460 V	575V	KVA	KW
300 A at 32 VDC, 60% Duty Cycle	240 A at 32 VDC, 100% Duty Cycle	38	54 (1.7*)	47 (1.5*)	23.5 (0.75*)	19.0 (0.5*)	18.6	13
* While idling								
Wire Type and Diameter			Wire Feed Speed	Dimensions			Net Weight	
Solid Steel	Stainless Steel	Flux Cored	25–700 IPM (.65–17.8 m/min)	H: 32 in (813 mm) W: 19 in (483 mm) D: 39 in (991 mm)			275 lb (125 kg)	
.023 – 1/16 in (0.6 – 1.6 mm)	.023 – .035 in (0.6 – 0.9 mm)	.030 – 1/16 in (0.8 – 1.6 mm)						
Operating Temperature Range – –20C to +40C			Storage Temperature Range – -30C to + 50C					

3-2. Duty Cycle And Overheating

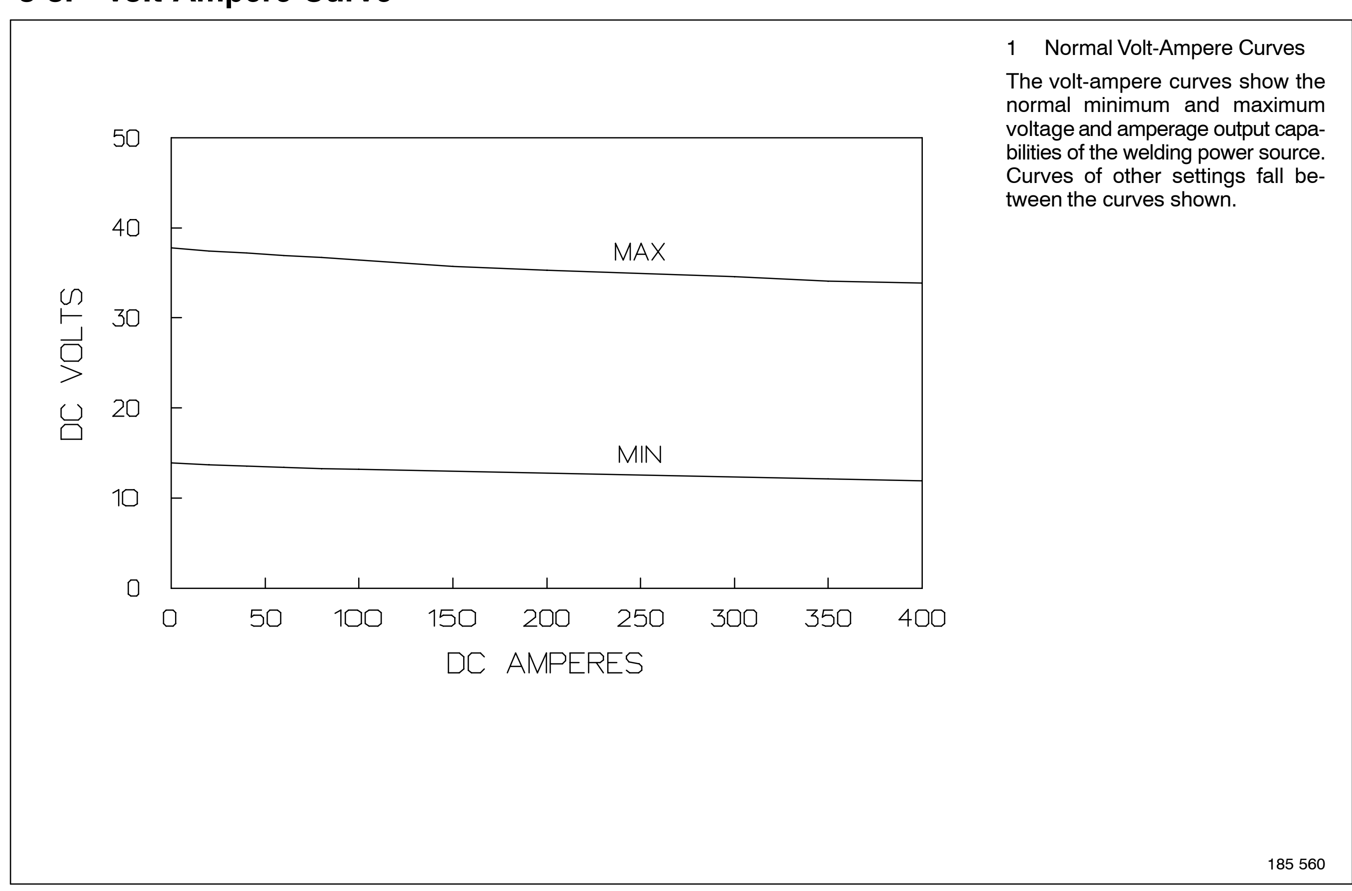


Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating.

If unit overheats, thermostat(s) opens, output stops, and cooling fan runs. Wait fifteen minutes for unit to cool. Reduce amperage or voltage, or duty cycle before welding.

▲ **Exceeding duty cycle can damage unit and void warranty.**

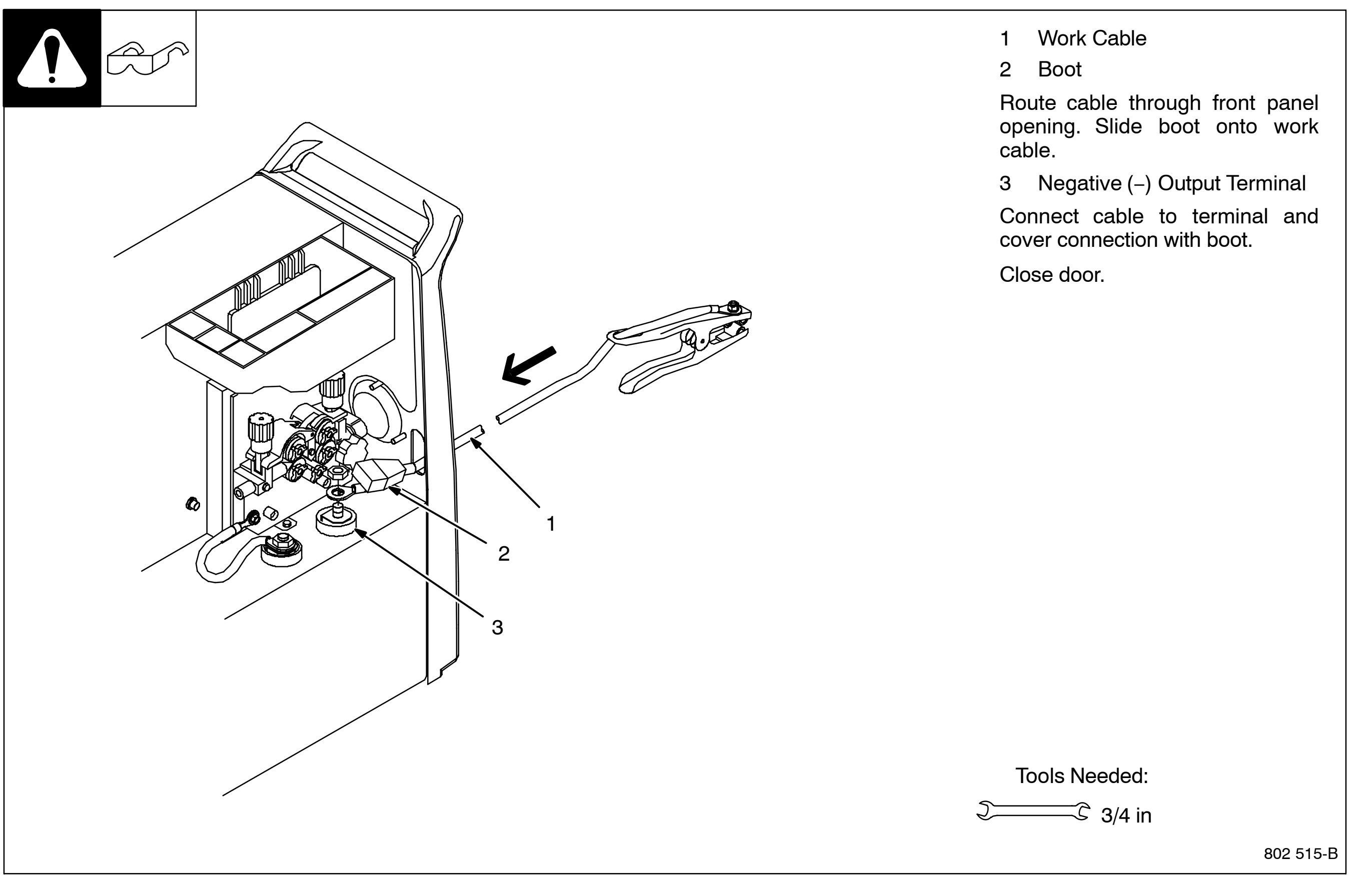
3-3. Volt-Ampere Curve



1 Normal Volt-Ampere Curves

The volt-ampere curves show the normal minimum and maximum voltage and amperage output capabilities of the welding power source. Curves of other settings fall between the curves shown.

3-4. Installing Work Clamp



1 Work Cable
2 Boot

Route cable through front panel opening. Slide boot onto work cable.

3 Negative (−) Output Terminal

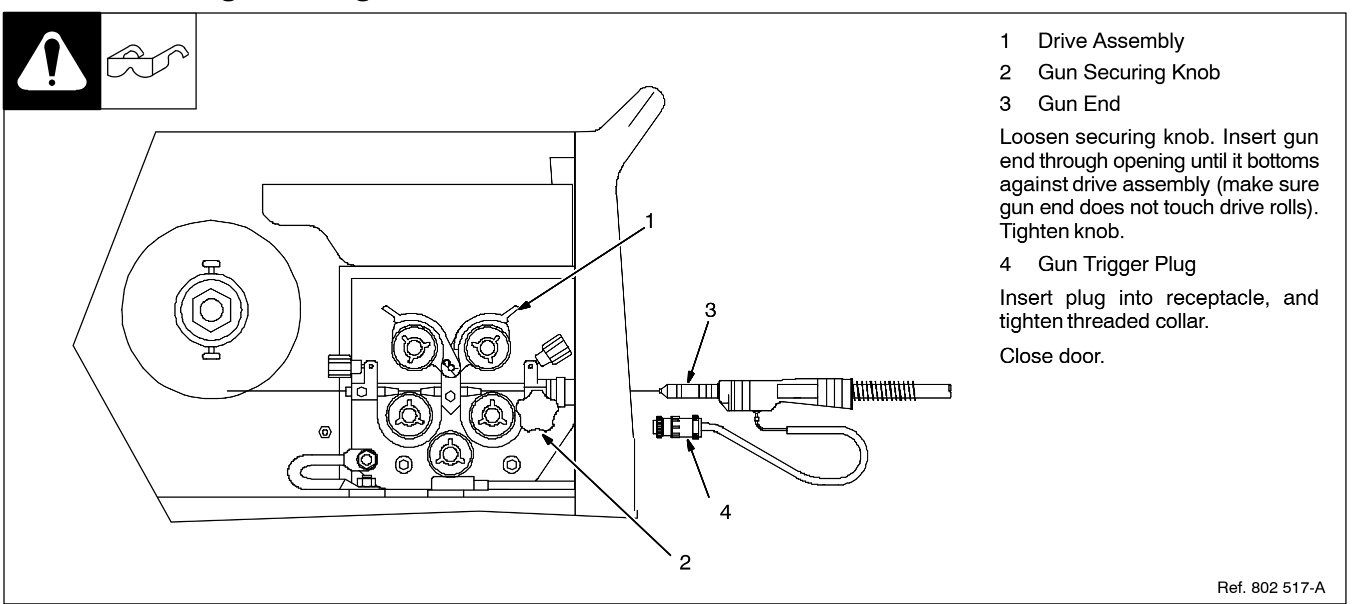
Connect cable to terminal and cover connection with boot.

Close door.

Tools Needed:

3/4 in

3-5. Installing Welding Gun



1 Drive Assembly
2 Gun Securing Knob
3 Gun End

Loosen securing knob. Insert gun end through opening until it bottoms against drive assembly (make sure gun end does not touch drive rolls). Tighten knob.

4 Gun Trigger Plug

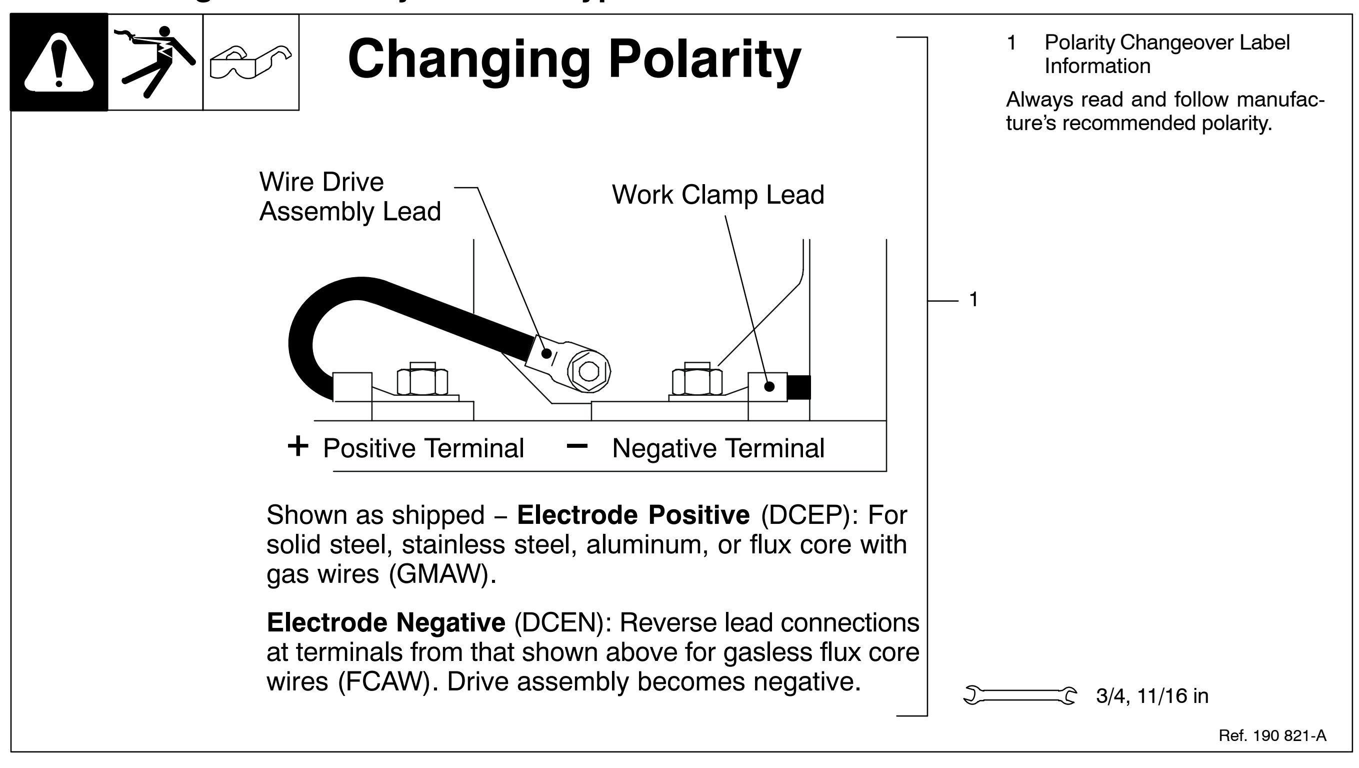
Insert plug into receptacle, and tighten threaded collar.

Close door.

3-6. Connecting A Spoolmatic ® 30A Gun

The Spoolmatic 30A welding gun connects directly to the 10-pin receptacle on the front of the welding power source – no adapter required. NOTE: Two welding guns may be connected to the welding power source at the same time, but only one welding gun may be in use at any one time. If the triggers of both welding guns are pulled at the same time, the weld output and wirefeed motor are disabled.

3-7. Setting Gun Polarity For Wire Type



1 Polarity Changeover Label Information

Always read and follow manufacture's recommended polarity.

3-8. Installing Gas Supply

☞ *DO NOT use Argon/Mixed gas regulator/flowmeter with CO_2 shielding gas. See Parts List for optional CO_2 gas regulator/flowmeter.*

Argon Gas Or Mixed Gas

Rear Panel

Obtain gas cylinder and chain to running gear, wall, or other stationary support so cylinder cannot fall and break off valve.

1 Cap

2 Cylinder Valve

Remove cap, stand to side of valve, and open valve slightly. Gas flow blows dust and dirt from valve. Close valve.

3 Cylinder

4 Regulator/Flowmeter

Install so face is vertical.

5 Regulator/Flowmeter Gas Hose Connection

6 Welding Power Source Gas Hose Connection

Connect customer supplied gas hose between regulator/flowmeter gas hose connection, and fitting on rear of welding power source.

7 Flow Adjust

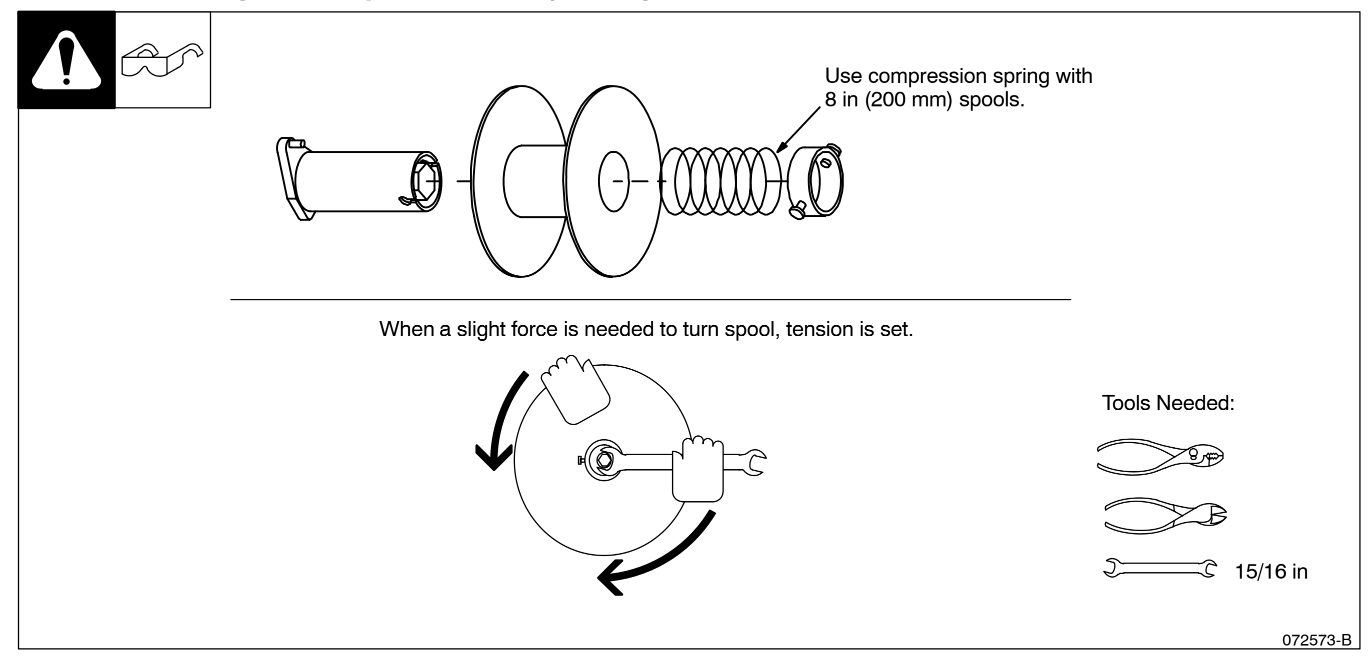
Typical flow rate is 20 cfh (cubic feet per hour). Check wire manufacturer's recommended flow rate.

Tools Needed:

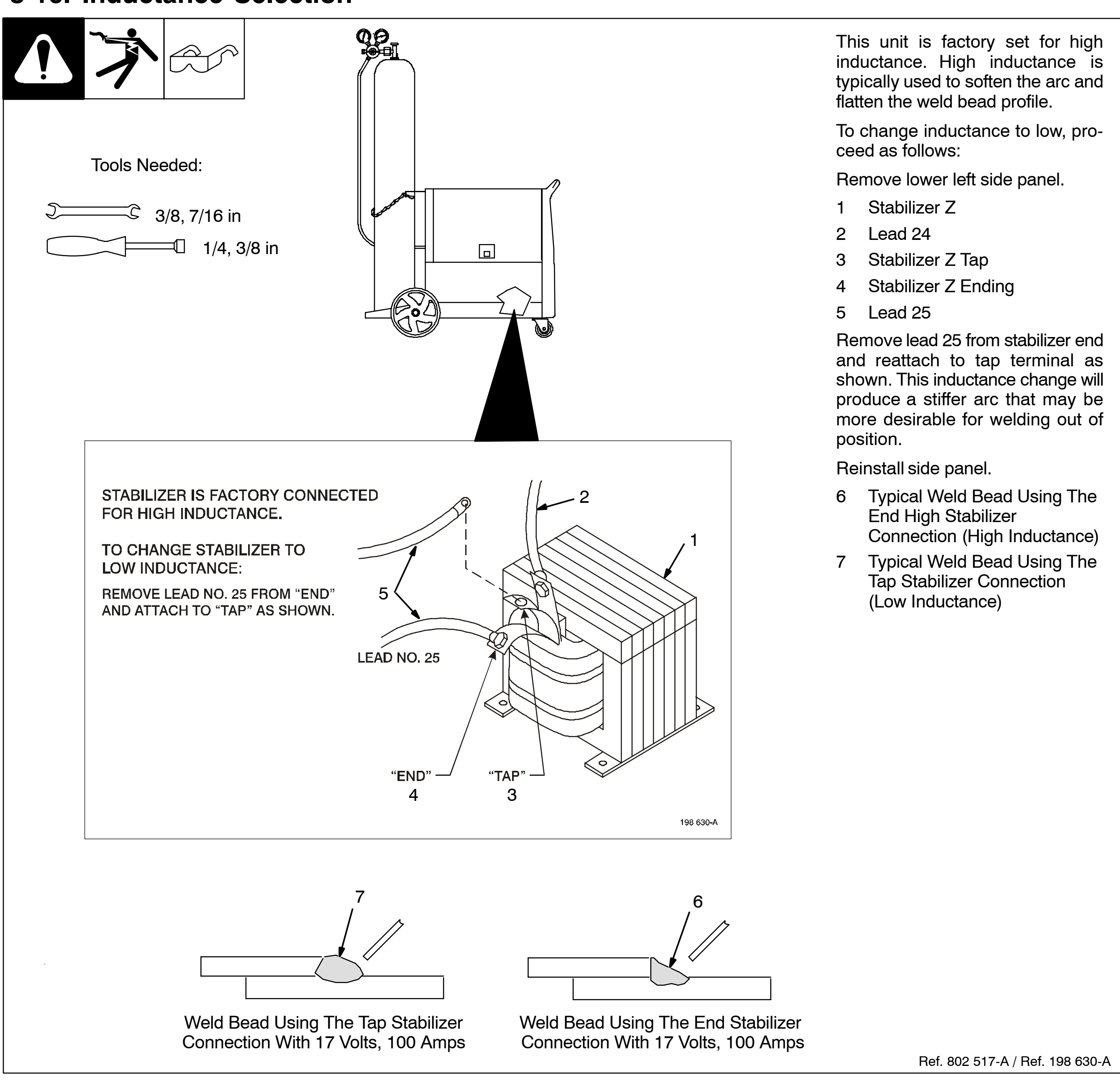
1-1/8, 5/8 in

802 028-A / Ref. 801 768-C

3-9. Installing Wire Spool and Adjusting Hub Tension



3-10. Inductance Selection



Weld Bead Using The Tap Stabilizer Connection With 17 Volts, 100 Amps

Weld Bead Using The End Stabilizer Connection With 17 Volts, 100 Amps

Ref. 802 517-A / Ref. 198 630-A

This unit is factory set for high inductance. High inductance is typically used to soften the arc and flatten the weld bead profile.

To change inductance to low, proceed as follows:

Remove lower left side panel.

1 Stabilizer Z
2 Lead 24
3 Stabilizer Z Tap
4 Stabilizer Z Ending
5 Lead 25

Remove lead 25 from stabilizer end and reattach to tap terminal as shown. This inductance change will produce a stiffer arc that may be more desirable for welding out of position.

Reinstall side panel.

6 Typical Weld Bead Using The End High Stabilizer Connection (High Inductance)
7 Typical Weld Bead Using The Tap Stabilizer Connection (Low Inductance)

3-11. Electrical Service Guide

Input Voltage	200	230	460	575
Input Amperes At Rated Output	54	47	23	19
Max Recommended Standard Fuse Or Circuit Breaker Rating In Amperes				
Circuit Breaker [1], Time-Delay [2]	60	50	25	20
Normal Operating [3]	80	70	35	30
Min Input Conductor Size In AWG/Kcmil	8	8	12	14
Max Recommended Input Conductor Length In Feet (Meters)	109 (33)	144 (44)	236 (72)	240 (73)
Min Grounding Conductor Size In AWG/Kcmil	8	8	12	14

Reference: 1999 National Electrical Code (NEC)

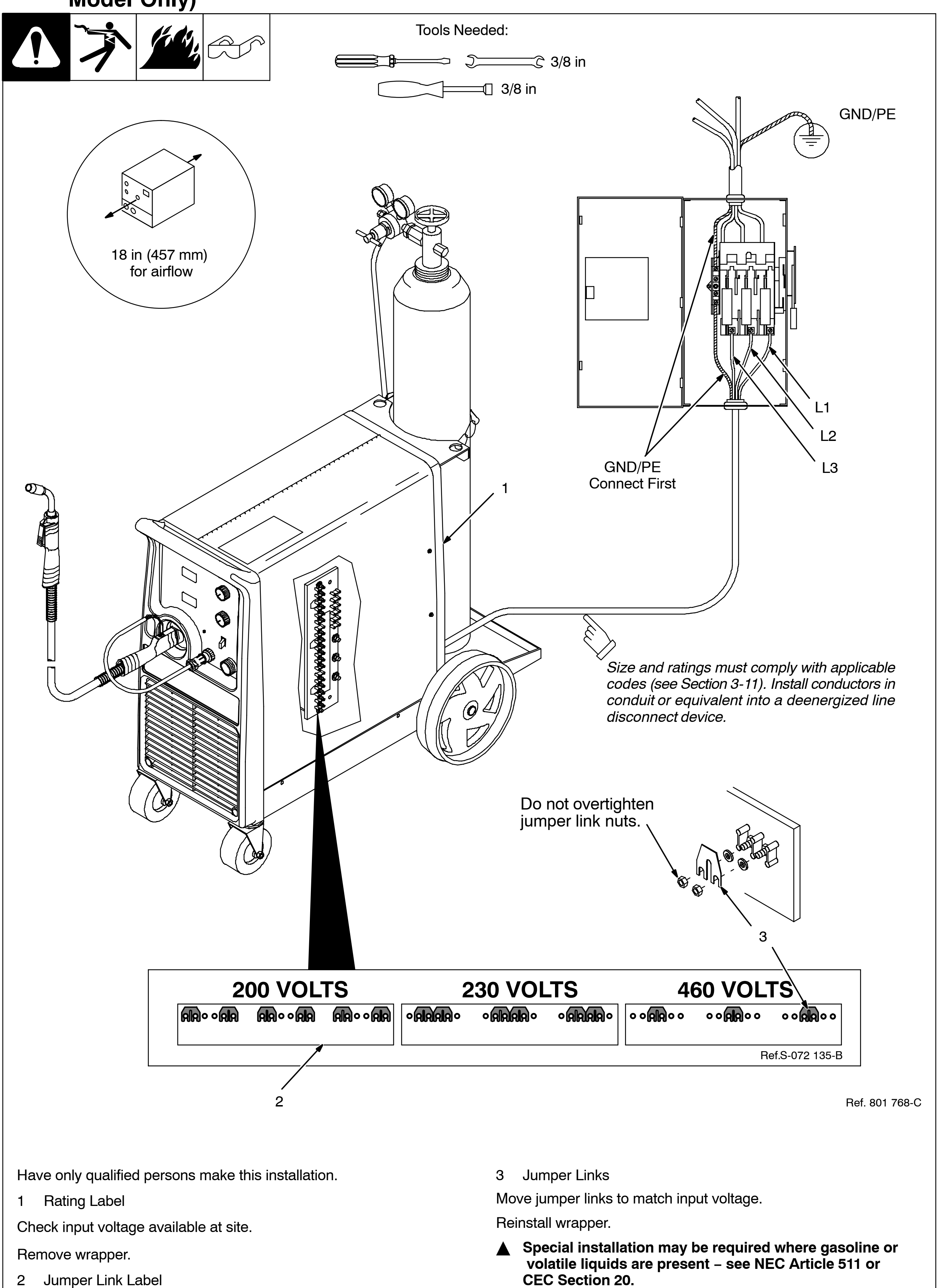
1 Choose a circuit breaker with time-current curves comparable to a Time Delay Fuse.

2 “Time-Delay” fuses are UL class “RK5” .

3 “Normal Operating” (general purpose – no intentional delay) fuses are UL class “K5” (up to and including 60 amp), and UL class “H” (65 amp and above).

▲ **Caution: Failure to follow these fuse and circuit breaker recommendations could create an electric shock or fire hazard.**

3-12. Selecting a Location and Connecting Input Power (Linking For 200/230/460 Volts Model Only)



Have only qualified persons make this installation.

1 Rating Label

Check input voltage available at site.

Remove wrapper.

2 Jumper Link Label

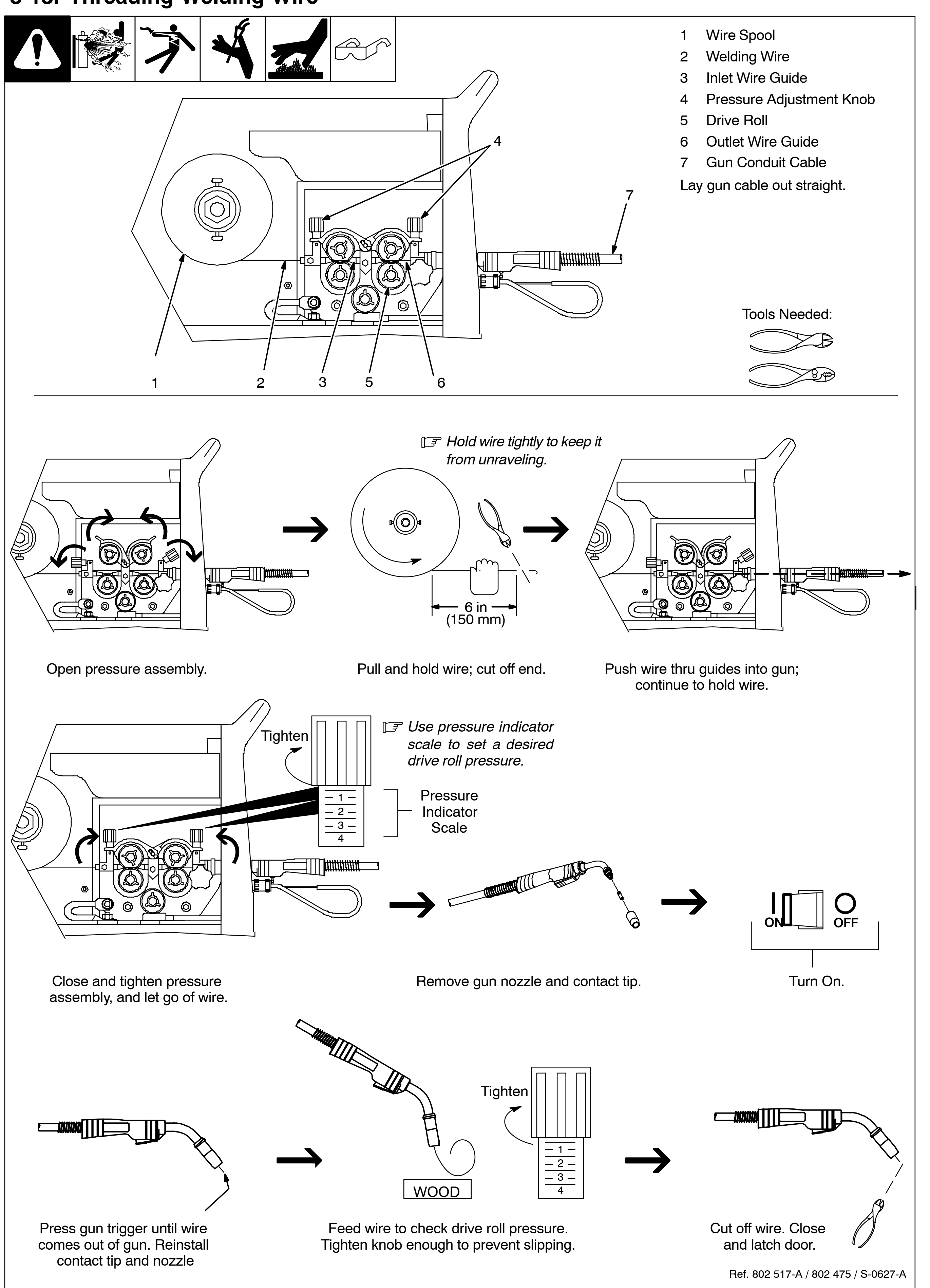
3 Jumper Links

Move jumper links to match input voltage.

Reinstall wrapper.

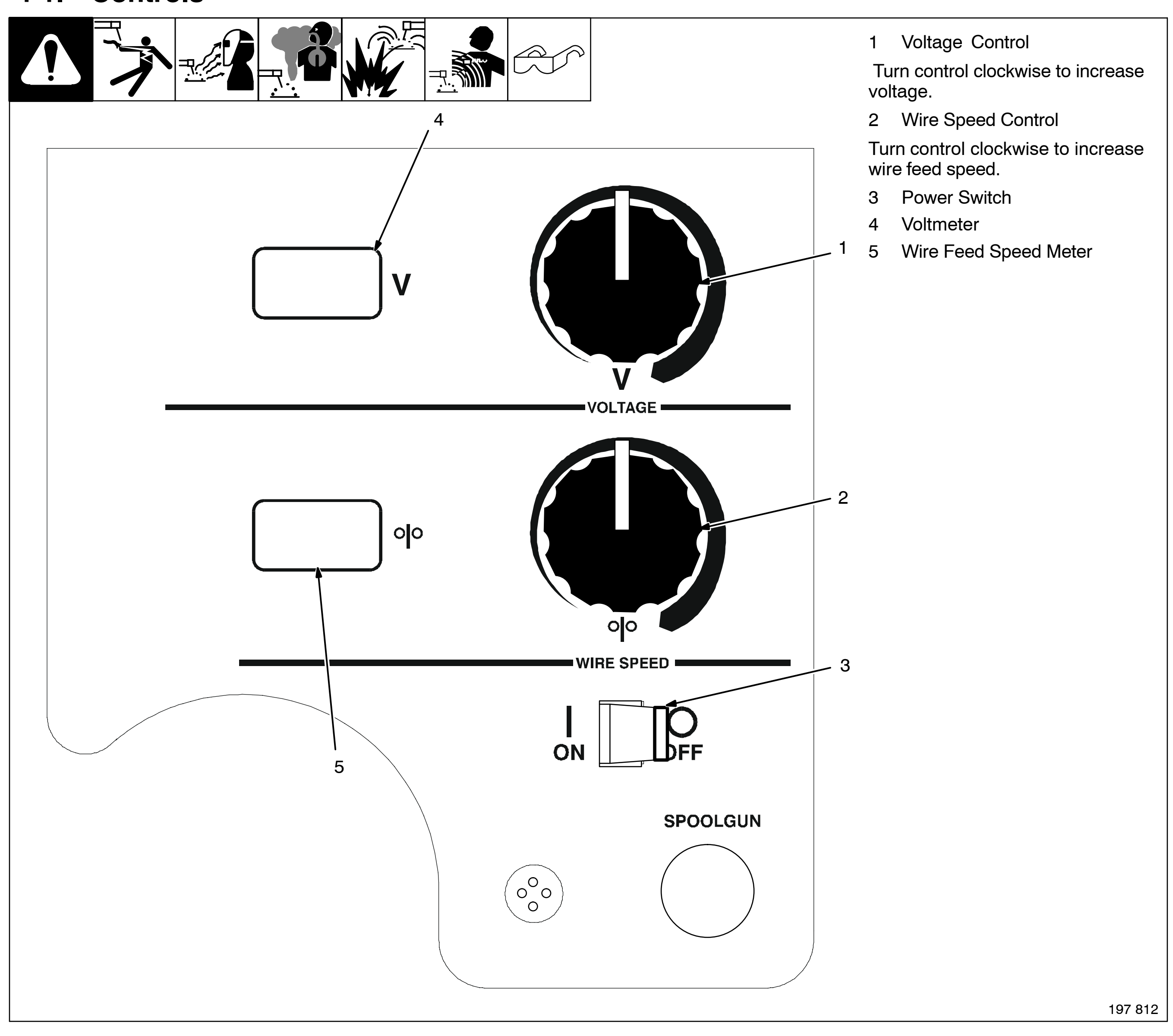
▲ **Special installation may be required where gasoline or volatile liquids are present – see NEC Article 511 or CEC Section 20.**

3-13. Threading Welding Wire



SECTION 4 – OPERATION

4-1. Controls



1 Voltage Control

Turn control clockwise to increase voltage.

2 Wire Speed Control

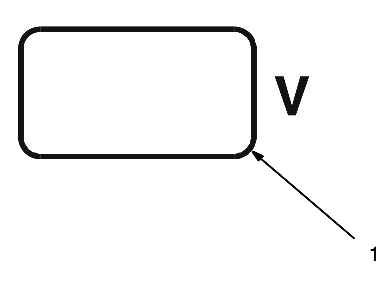
Turn control clockwise to increase wire feed speed.

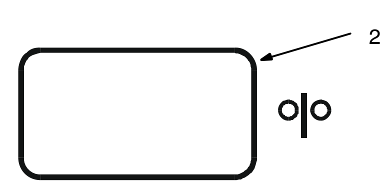
3 Power Switch

4 Voltmeter

5 Wire Feed Speed Meter

4-2. Voltmeter And Wire Feed Speed Meter Operation





1 Voltmeter
2 Wire Feed Speed Meter

Power Up Status

Both meters display zeros at unit power up. After one second, preset values appear on both meters. The MIG gun settings (not spool gun) are always the default at initial power up of the unit.

Welding Status

When either a MIG gun or spool gun trigger is pressed and a welding arc is established, the voltmeter displays actual weld voltage. When the gun trigger is released and welding arc extinguished, the voltmeter displays the last actual voltage for 5 seconds and then returns to preset voltage. If welding resumes before unit displays preset voltage, actual welding voltage will appear on the voltmeter.

The wire feed speed meter always displays preset wire feed speed (IPM).

Gun Selection

The wire feed speed meter will display preset wire feed speed (IPM) for the appropriate gun selection either MIG or spool gun. To preset desired wire feed speed, connect desired gun, press gun trigger for one second, and release trigger. The meter preset will be retained by the meter board until a different gun is connected and preset is performed or the unit is turned off and back on. The MIG gun settings (not spool gun) are always the default at initial power up of the unit.

Error Message

If the rectifier thermostat opens, the voltmeter will display (H – –) and the wire feed speed meter will display (– – –). During this overheated condition, the unit is inoperative and the meters retain their display until the rectifier returns to normal operating temperature.

4-3. Weld Parameter Chart

Selecting Wire, Gas and Control Settings

What Material are You Welding?	Suggested Wire Types	Suggested Shielding Gases and Flow Rate	Wire Sizes (Diameter)
Steel	Solid (or hard) ER70S-6	100% CO_2, 20 cfh	.023" (0.6 mm) .030" (0.8 mm) .035" (0.9 mm) .045" (1.1 mm) .052" (1.3 mm) 1/16" (1.6 mm)
		75% Ar/25% CO_2, 20 cfh (Ar/CO_2 produces less spatter – better overall appearance)	.023" (0.6 mm) .030" (0.8 mm) .035" (0.9 mm) .045" (1.1 mm) .052" (1.3 mm) 1/16" (1.6 mm)
Steel - for outdoor, windy applications or when weld appearance is not critical.	Flux core E71T-GS	No shielding gas required	.030" (0.8 mm) .035" (0.9 mm) .045" (1.1 mm) 1/16" (1.6 mm)
	Flux core E71T-1	100% CO_2, 20 cfh 75% Ar/25% CO_2, 20 cfh	.035" (0.9 mm) .045" (1.1 mm) .052" (1.3 mm)
Stainless steel	Stainless steel ER 308, ER308L ER 308LSi	Tri-Mix, 20 cfh (90% He/7.5% Ar/ 2.5% CO_2)	.023" (0.6 mm) .030" (0.8 mm) .035" (0.9 mm) .045" (1.1 mm)
Aluminum with Optional Spoolmatic® 15A or 30A spool gun	Aluminum 4043 AL	100% Ar, 20 cfh	.030" (0.8 mm) .035" (0.9 mm) .047" (1.2 mm)

Select Voltage and Wire Speed Based on Thickness of Metal Being Welded

To read setting: Number on left of slash is voltage, number on right of slash is wire-speed. "_" Means not recommended.

Example: 19.2/398 =





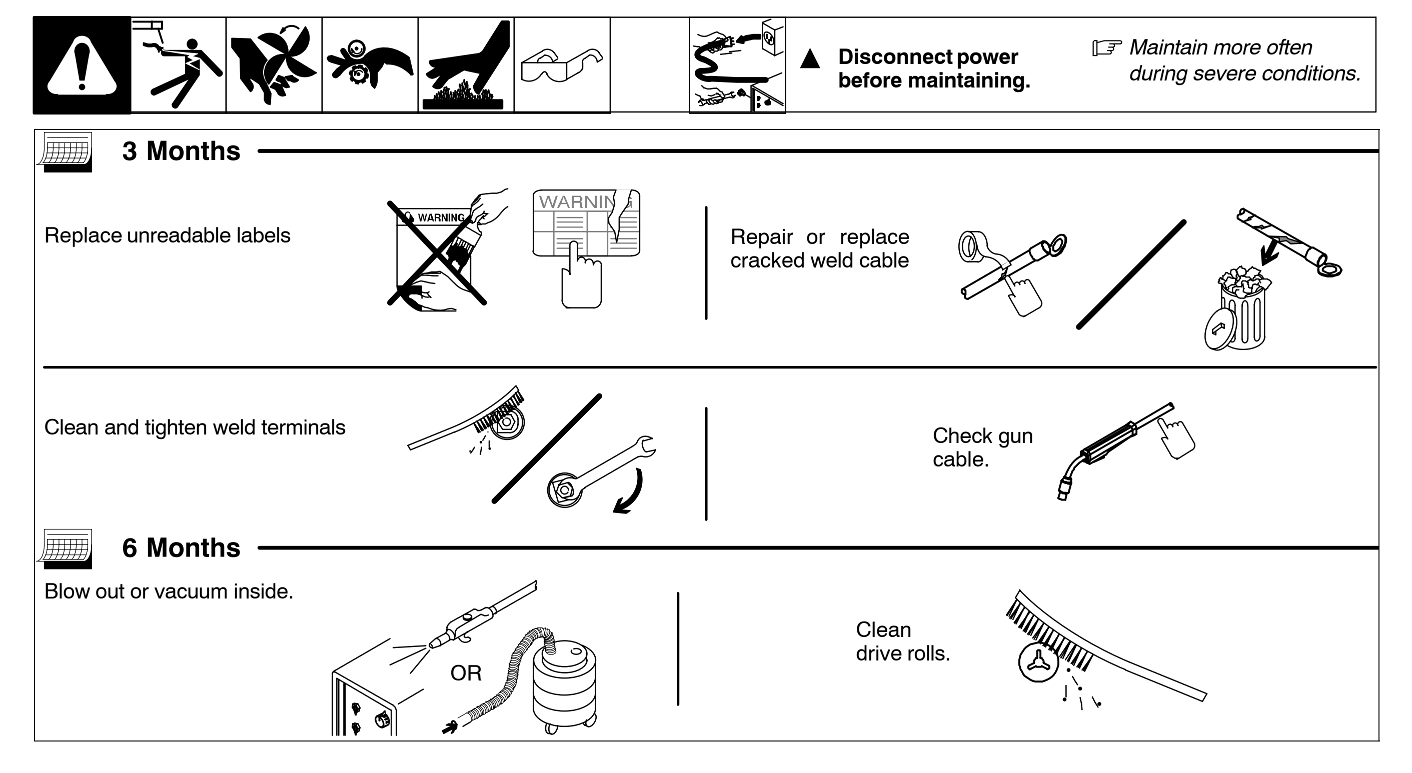


1/2" (12.7 mm)	3/8" (9.5 mm)	1/4" (6.4 mm)	3/16" (4.8 mm)	1/8" (3.2 mm)	14 ga. (2.0 mm)	16 ga. (1.6 mm)	18 ga. (1.2 mm)	20 ga. (0.9 mm)	22 ga. (0.8 mm)
–	–	–	–	–	–	17.0/265	16.5/230	15.5/195	15.5/195
–	23.5/610	21.5/475	20.0/430	18.5/225	17.0/235	16.5/195	16.5/195	15.5/115	–
24.0/435	22.0/380	20.5/310	19.5/300	18.5/195	17.5/155	16.5/140	16.0/130	–	–
24.0/315	22.0/250	20.0/195	19.0/165	18.5/150	17.5/125	–	–	–	–
25.0/250	23.0/220	21.5/203	20.5/150	19.0/120	18.5/110	–	–	–	–
24.5/200	22.5/170	21.5/125	20.5/110	19.5/95	–	–	–	–	–
–	–	–	19.5/680	18.5/515	16.5/385	16.5/320	15.5/315	14.5/225	14.5/225
–	21.0/580	19.0/450	18.0/380	17.0/325	16.0/265	15.5/220	15.0/165	14.5/145	14.5/145
24.0/460	20.0/380	18.0/315	17.0/280	16.0/235	15.0/185	14.7/150	14.5/125	14.0/105	14.0/105
23.0/375	20.0/295	18.0/245	17.0/210	16.0/160	15.0/125	14.5/120	14.5/120	–	–
23.5/305	20.0/230	18.0/180	17.0/170	16.0/140	15.0/120	14.5/95	–	–	–
24.0/235	20.0/175	18.5/170	17.5/135	16.5/100	15.5/95	–	–	–	–
–	19.0/350	19.0/270	15.5/155	14.5/145	13.0/125	12.5/120	–	–	–
–	19.0/180	19.0/160	16.0/130	14.5/120	13.0/110	12.5/100	–	–	–
19.0/170	19.0/170	19.0/140	15.5/120	14.5/100	13.0/85	–	–	–	–
19.0/130	19.0/120	17.5/100	15.5/85	14.5/75	13.0/60	–	–	–	–
26.5/465	25.0/430	22.0/330	20.5/250	18.5/215	17.5/180	17.0/170	–	–	–
26.5/315	25.0/285	22.0/240	20.5/195	18.5/165	17.5/145	–	–	–	–
26.5/290	25.0/260	22.0/205	20.5/170	18.5/130	17.5/125	–	–	–	–
–	–	23.0/680	22.5/550	21.0/445	19.5/305	19.0/265	18.5/250	18.0/230	–
–	23.5/500	22.5/435	21.5/375	19.5/300	19.0/260	18.0/180	17.5/165	–	–
–	23.5/390	22.5/350	21.5/325	19.5/280	19.0/250	18.0/170	–	–	–
–	23.5/315	21.5/285	20.5/250	19.0/220	18.5/185	–	–	–	–
–	24.0/760	20.0/575	18.5/525	16.0/525	13.0/510	12.5/510	–	–	–
–	24.5/725	20.0/475	18.0/460	16.0/405	13.0/405	–	–	–	–
25.5/550	24.5/525	20.0/380	18.5/370	16.0/360	–	–	–	–	–

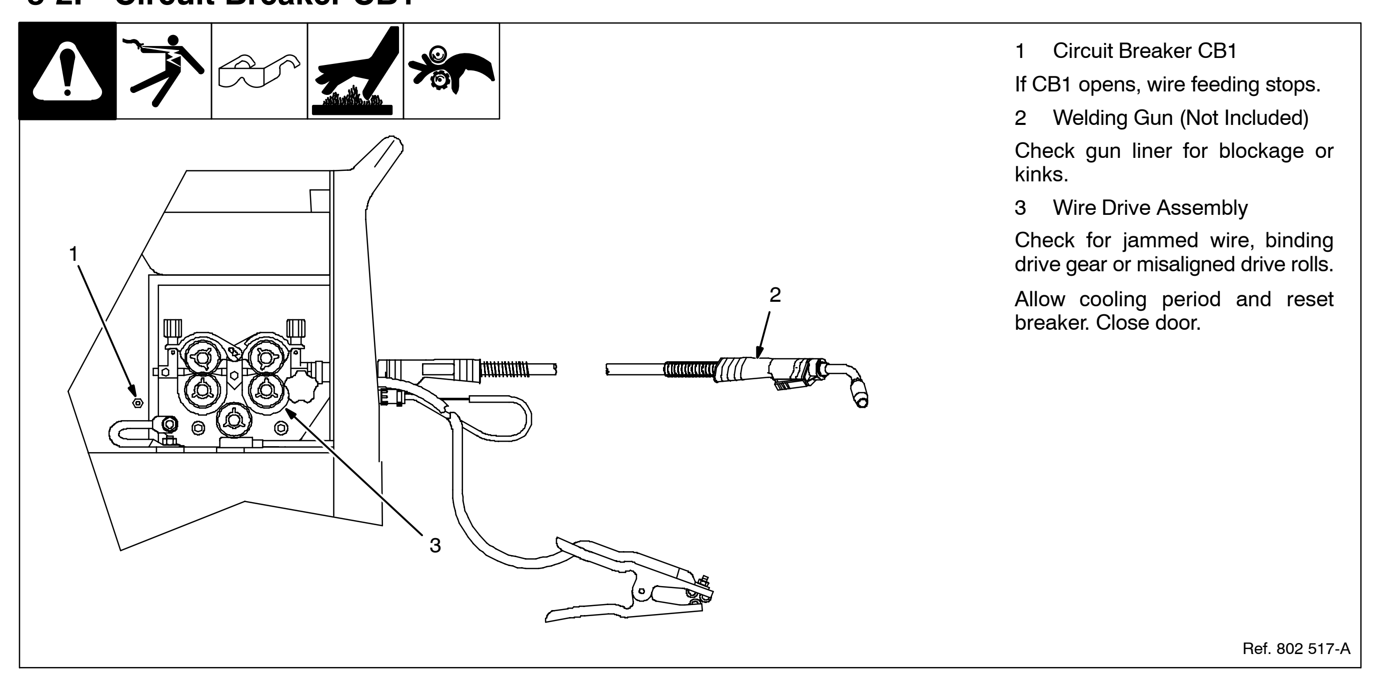
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SECTION 5 – MAINTENANCE &TROUBLESHOOTING

5-1. Routine Maintenance



5-2. Circuit Breaker CB1



1 Circuit Breaker CB1

If CB1 opens, wire feeding stops.

2 Welding Gun (Not Included)

Check gun liner for blockage or kinks.

3 Wire Drive Assembly

Check for jammed wire, binding drive gear or misaligned drive rolls.

Allow cooling period and reset breaker. Close door.

5-3. Overheating

Thermostats TP2 and TP3 protect the unit from damage due to overheating. If main transformer T1 or rectifier Z1 gets too hot, TP2 and/or TP3 opens and output stops. The fan keeps running to cool the unit. Wait several minutes before trying to weld.

5-4. Changing Drive Roll and Wire Inlet Guide

Tools Needed:

5/64 in

7/16 in

1 Securing Screw

2 Inlet Wire Guide

Loosen screw. Slide tip as close to drive rolls as possible without touching. Tighten screw.

3 Anti-Wear Guide

Install guide as shown.

4 Intermediate Guide

5 Drive Roll

☞ *The drive assembly comes equipped with fractory installed .035/.045 combination drive rolls. Be sure that all 4 drive rolls are installed correctly.*

Combination drive rolls consist of two different sized grooves. The stamped markings on the end surface of the drive roll refers to the groove on the opposite side of the drive roll. The groove closest to the carrier gear is the groove for the wire size viewed on the end surface of the drive roll.

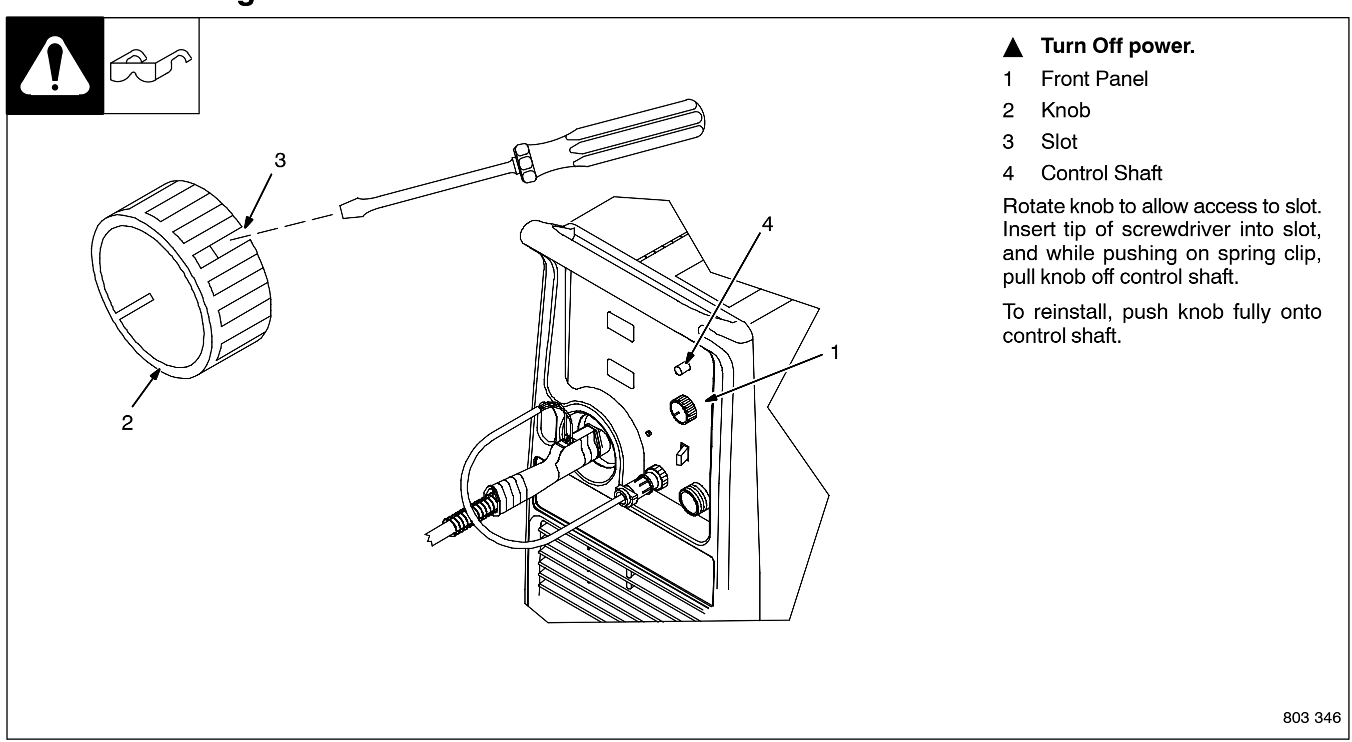
Install correct drive roll for wire size and type.

6 Drive Roll Securing Nut

Turn nut one click to secure drive roll.

802 520-A

5-5. Removing Knob From Front Panel



▲ **Turn Off power.**

1 Front Panel

2 Knob

3 Slot

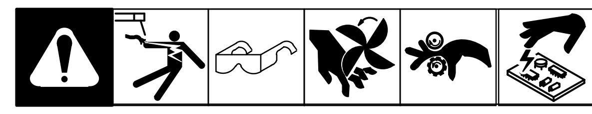
4 Control Shaft

Rotate knob to allow access to slot. Insert tip of screwdriver into slot, and while pushing on spring clip, pull knob off control shaft.

To reinstall, push knob fully onto control shaft.

803 346

5-6. Troubleshooting



Trouble	Remedy
No weld output; wire does not feed.	Be sure line disconnect switch is On (see Section 3-12).
	Replace building line fuse or reset circuit breaker if open (see Section 3-12).
	Reset circuit breaker CB1 (see Section 5-2).
	Secure gun trigger connections (see Section 3-5).
	Have Factory Authorized Service Agent check Power switch.
	Have Factory Authorized Service Agent check all board connections and main control board.
No weld output; wire feeds.	Thermostat TP2 or TP3 open (overheating). Allow fan to run; the thermostat will close when the unit has cooled (see Section 3-2 and 5-3).
	Connect work clamp to get good metal to metal contact.
	Replace contact tip (see gun Owner's Manual).
	Have Factory Authorized Service Agent check main control board and main rectifier.
Low weld output.	Connect unit to proper input voltage or check for low line voltage (see Section 3-12).
	Check input voltage jumper links and correct position if necessary (see Section 3-12).
	Have Factory Authorized Service Agent check main control board.
Low, high, or erratic wire speed.	Readjust front panel settings (see Section 4-1).
	Change to correct size drive rolls (see Section 5-4).
	Readjust drive roll pressure (see Section 3-13).
	Replace inlet guide, contact tip, and/or liner if necessary (see gun Owner's Manual).
	Check position of input jumper links (see Section 3-12).
	Have Factory Authorized Service Agent check main control board.
No wire feed.	Reset circuit breaker CB1 (see Section 5-2).
	Turn Wire Speed control to higher setting (see Section 4-1).
	Clear obstruction in gun contact tip or liner (see gun Owner's Manual).
	Readjust drive roll pressure (see Section 3-13).
	Change to correct size drive rolls (see Section 5-4).
	Rethread welding wire (see Section 3-13).
	Check gun trigger and leads. Repair or replace gun if necessary. Welding gun not included.
	Have Factory Authorized Service Agent check main control board.
	H – – message appears on voltmeter display to indicate thermostat TP1 is open and unit is in an overheated condition (see Section 4-2).

Notes

SECTION 6 – ELECTRICAL DIAGRAM

⚠ WARNING	• Do not touch live electrical parts.
ELECTRIC SHOCK HAZARD	• Disconnect input power or stop engine before servicing. • Do not operate with covers removed. • Have only qualified persons install, use, or service this unit.

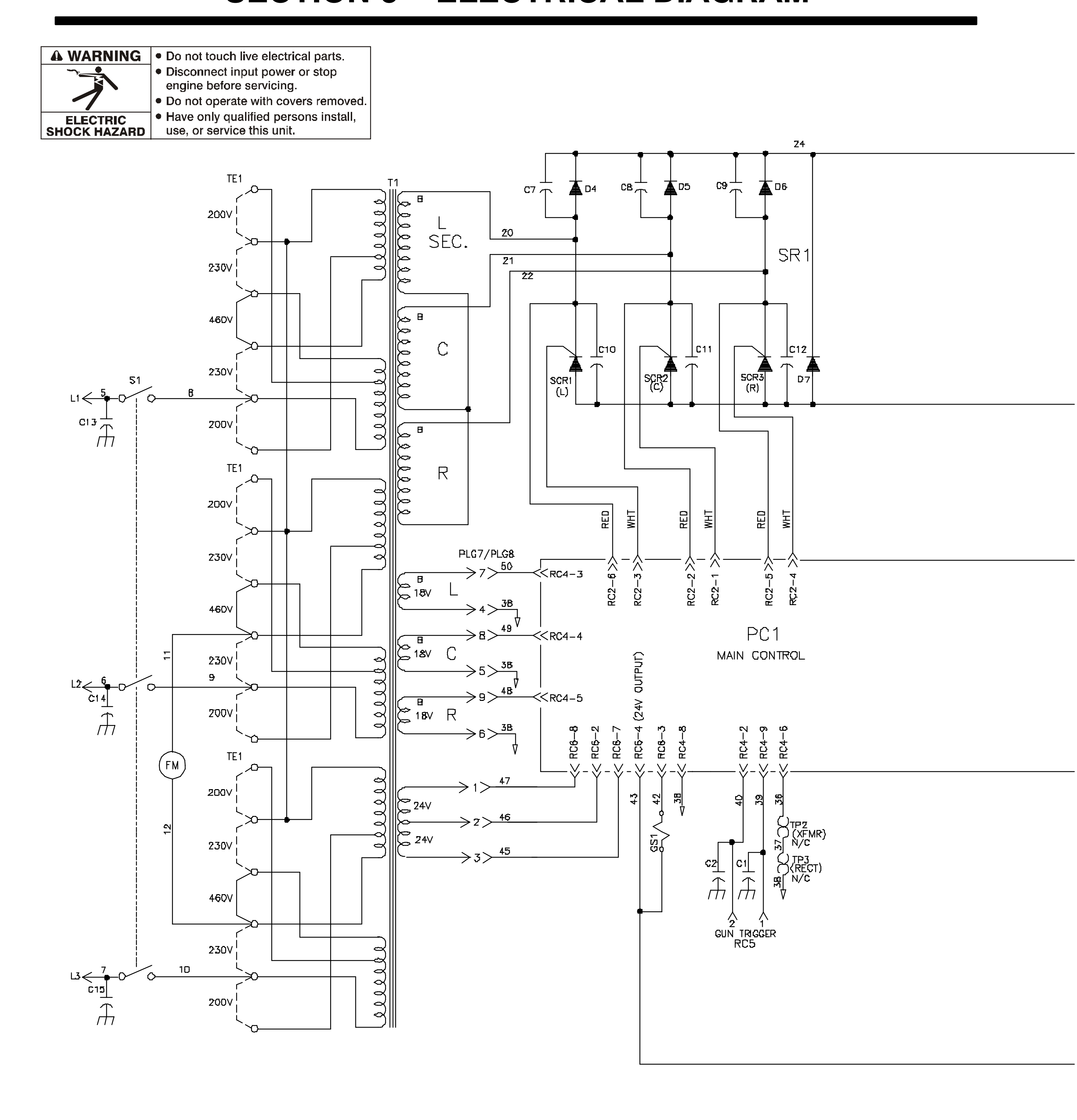
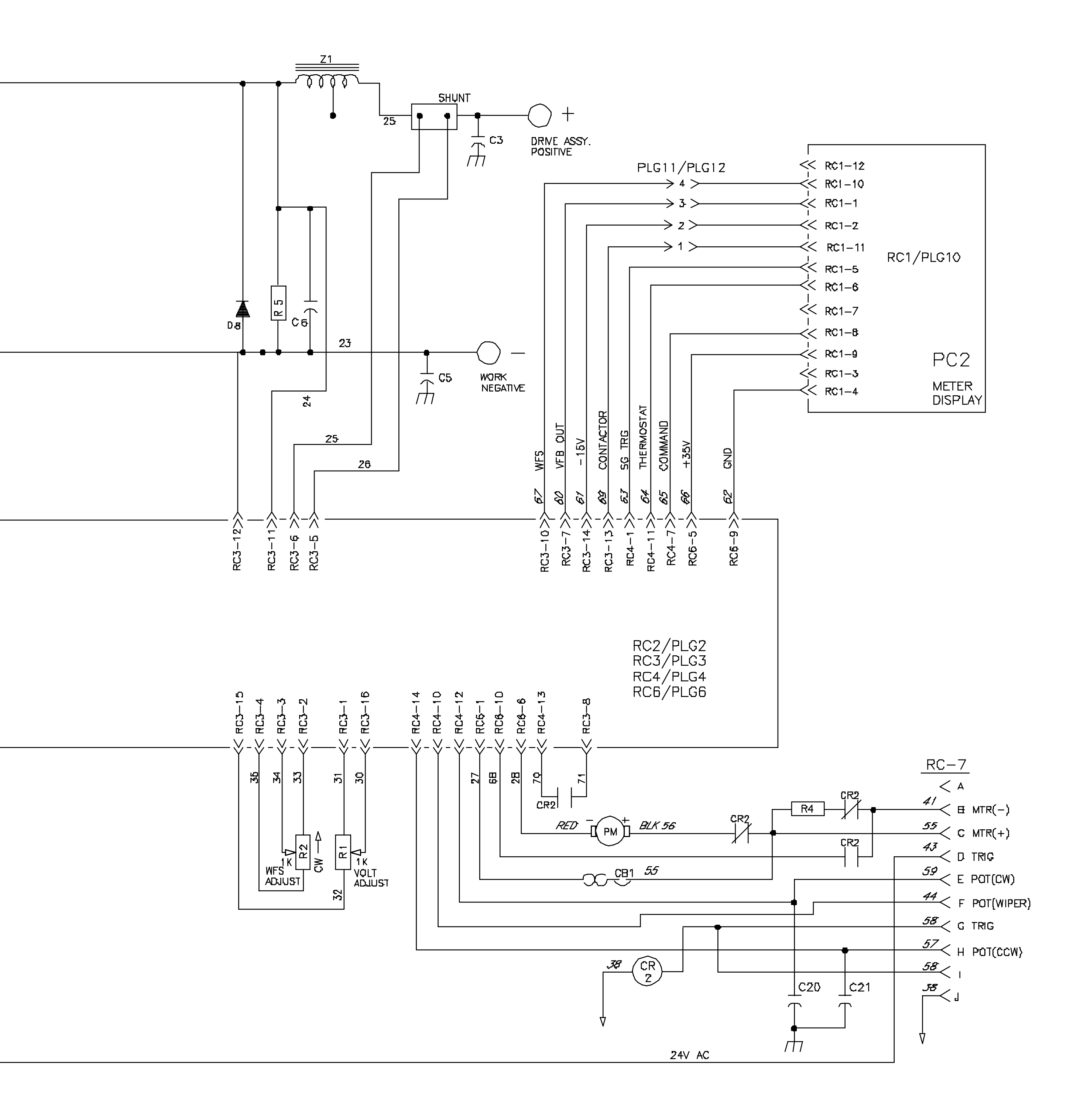


Figure 5-1. Circuit Diagram For 200/230/460 Volts Model


Z1
SHUNT
DRIVE ASSY. POSITIVE
C3
25
PLG11/PLG12
RC1-12
RC1-10
RC1-1
RC1-2
RC1-11
RC1/PLG10
RC1-5
RC1-6
RC1-7
RC1-8
RC1-9
RC1-3
RC1-4
PC2
METER DISPLAY
R 5
C6
D8
23
C5
WORK NEGATIVE
24
25
26
WFS
VFB OUT
-15V
CONTACTOR
SG TRIG
THERMOSTAT
COMMAND
+35V
GND
RC3-12
RC3-11
RC3-6
RC3-5
RC3-10
RC3-7
RC3-14
RC3-13
RC4-1
RC4-11
RC4-7
RC6-5
RC6-9
RC2/PLG2
RC3/PLG3
RC4/PLG4
RC6/PLG6
RC3-15
RC3-4
RC3-3
RC3-2
RC3-1
RC3-16
RC4-14
RC4-10
RC4-12
RC6-1
RC6-10
RC6-6
RC4-13
RC3-8
RC-7
CR2
RED
PM
BLK 56
R4
WFS ADJUST
CW
VOLT ADJUST
CB1
CR 2
C20
C21
24V AC
A
B MTR(-)
C MTR(+)
D TRIG
E POT(CW)
F POT(WIPER)
G TRIG
H POT(CCW)
I
J

197 482-D

⚠ WARNING	• Do not touch live electrical parts. • Disconnect input power or stop engine before servicing. • Do not operate with covers removed. • Have only qualified persons install, use, or service this unit.
ELECTRIC SHOCK HAZARD	

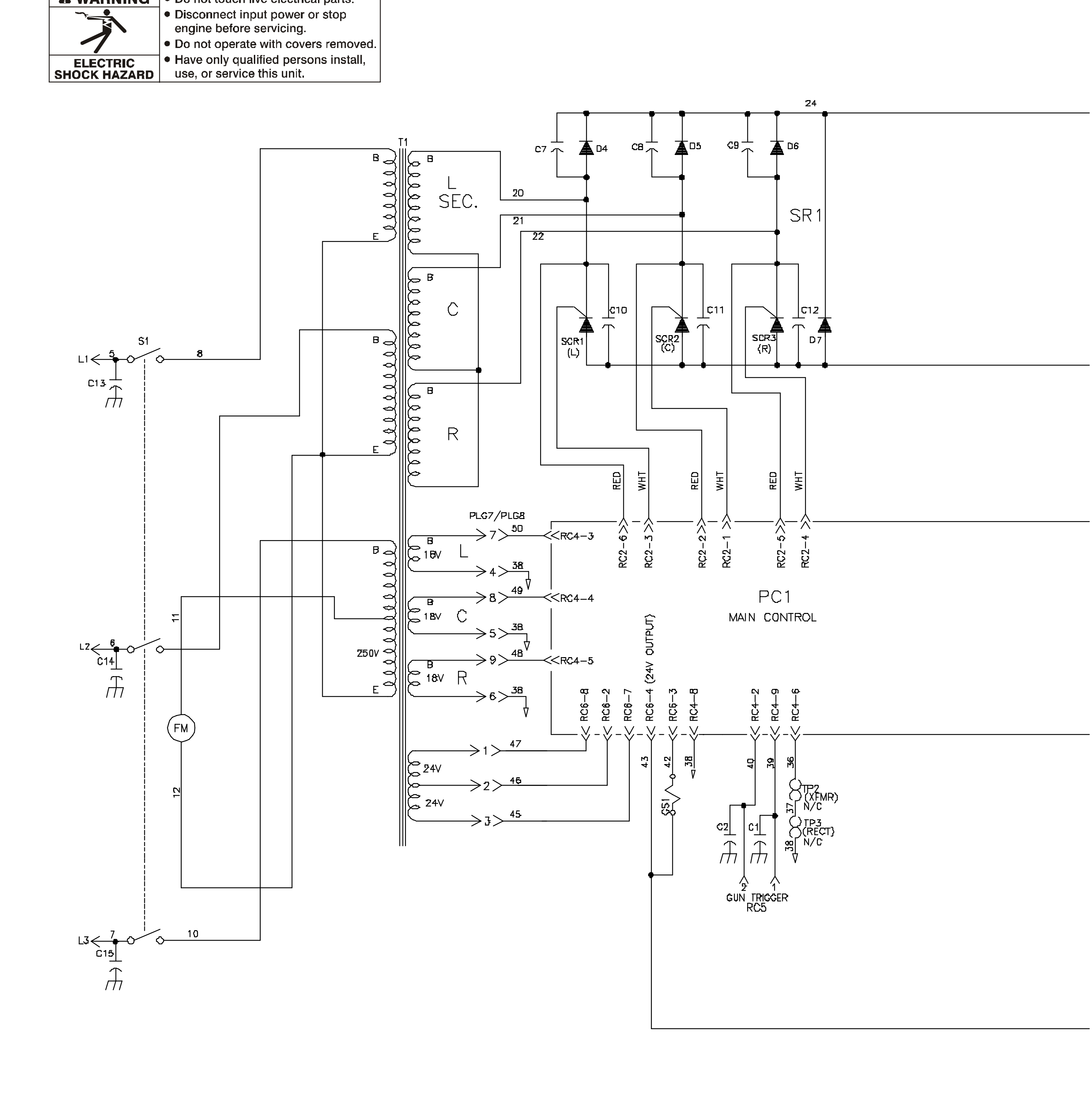
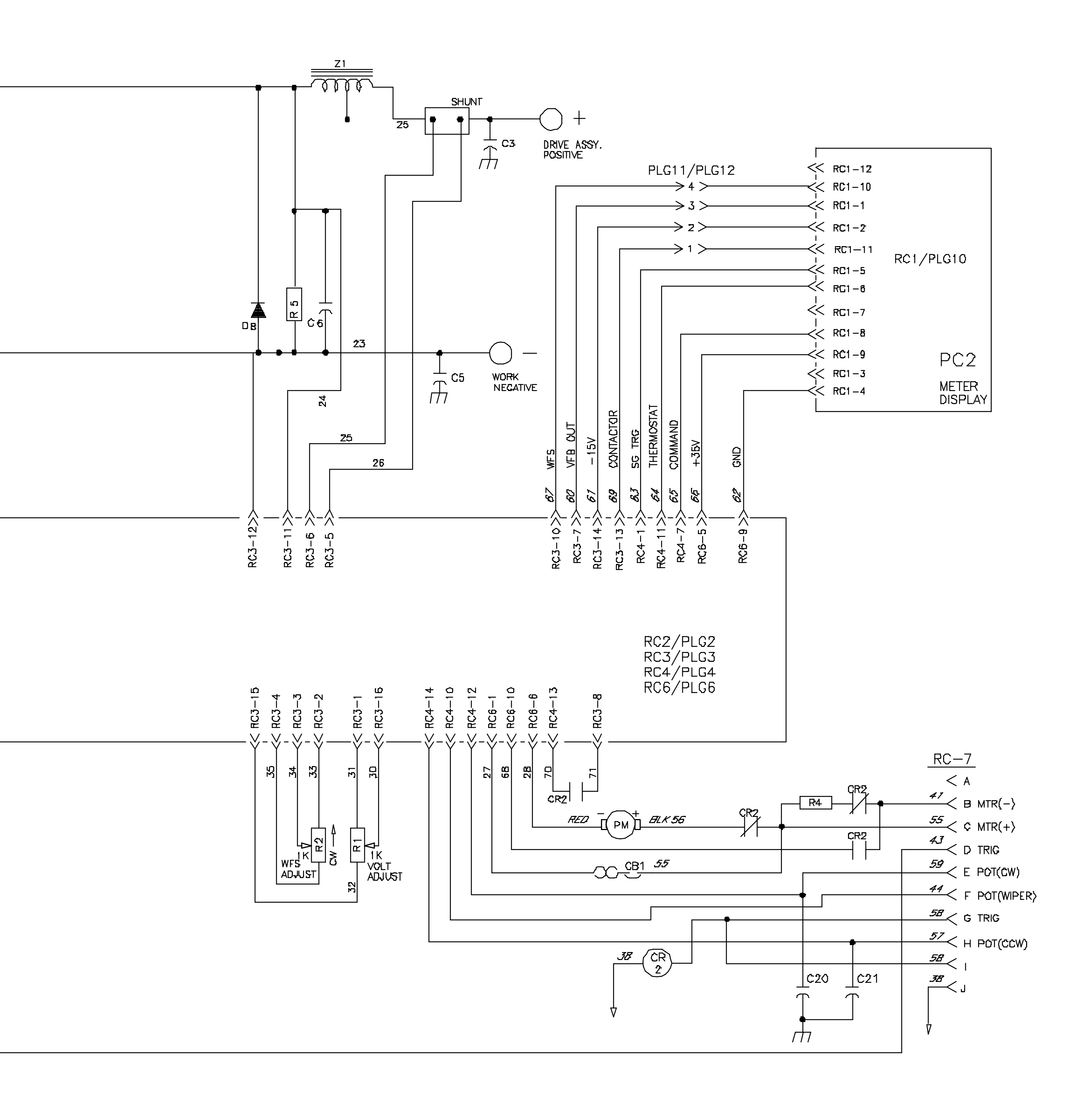


Figure 5-2. Circuit Diagram For 575 Volts Model



Z1
SHUNT
25
DRIVE ASSY.
POSITIVE
C3
PLG11/PLG12
4
3
2
1
RC1-12
RC1-10
RC1-1
RC1-2
RC1-11
RC1-5
RC1-6
RC1-7
RC1-8
RC1-9
RC1-3
RC1-4
RC1/PLG10
PC2
METER
DISPLAY
D8
R5
C6
23
C5
WORK
NEGATIVE
24
25
26
WFS
VFB OUT
-15V
CONTACTOR
SG TRG
THERMOSTAT
COMMAND
+35V
GND
67
60
61
69
63
64
65
66
62
RC3-12
RC3-11
RC3-6
RC3-5
RC3-10
RC3-7
RC3-14
RC3-13
RC4-1
RC4-11
RC4-7
RC6-5
RC6-9
RC2/PLG2
RC3/PLG3
RC4/PLG4
RC6/PLG6
RC3-15
RC3-4
RC3-3
RC3-2
RC3-1
RC3-16
RC4-14
RC4-10
RC4-12
RC6-1
RC6-10
RC6-6
RC4-13
RC3-8
35
34
33
31
30
27
68
28
70
71
CR2
RED
PM
BLK 56
CR2
R4
CR2
CR2
1K
R2
CW
WFS
ADJUST
R1
1K
VOLT
ADJUST
32
CB1
55
RC-7
A
41
B MTR(-)
55
C MTR(+)
43
D TRIG
59
E POT(CW)
44
F POT(WIPER)
58
G TRIG
57
H POT(CCW)
58
I
38
J
38
CR
2
C20
C21

207 116-A

SECTION 7 – PARTS LIST

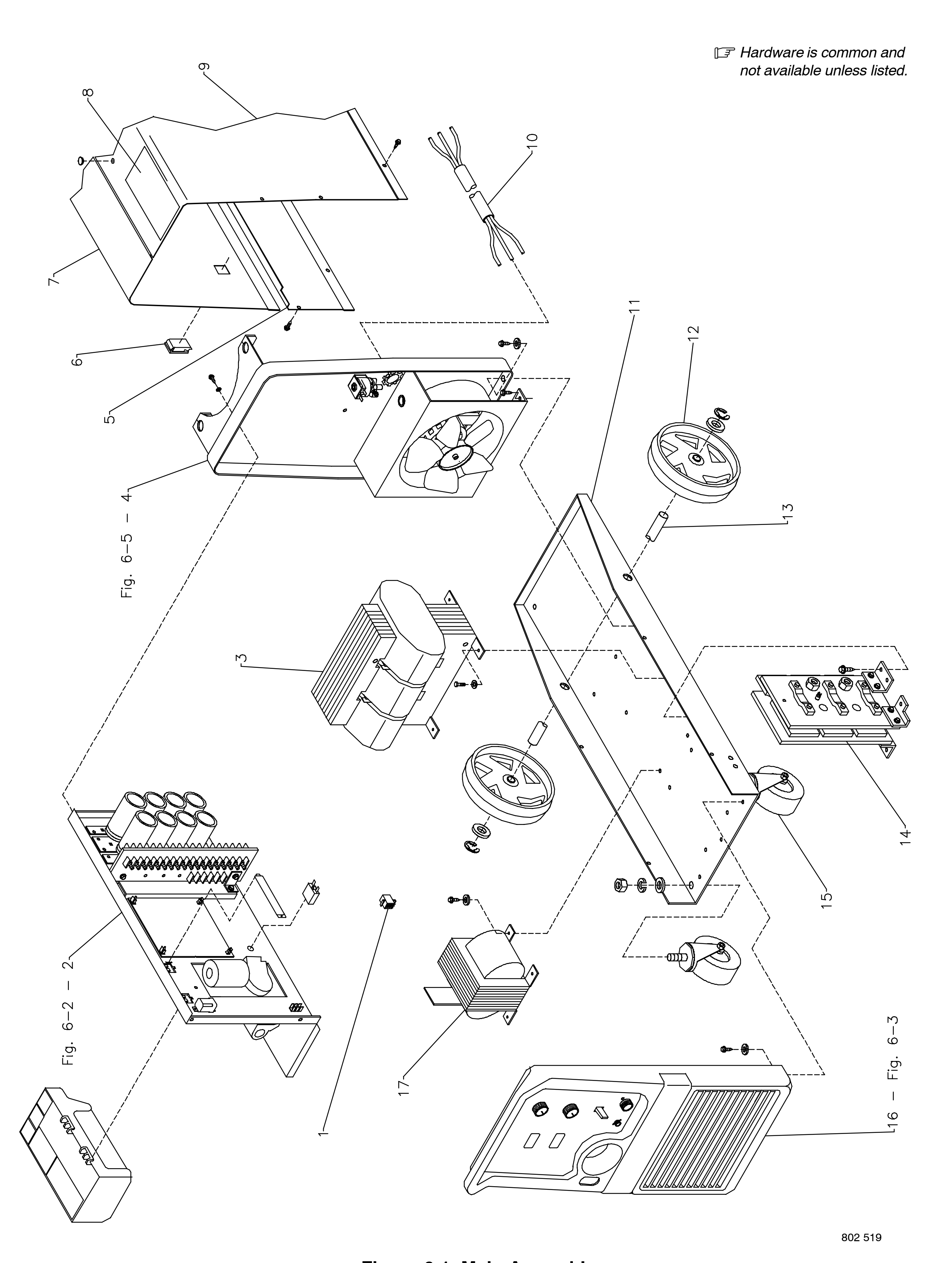


Figure 6-1. Main Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity

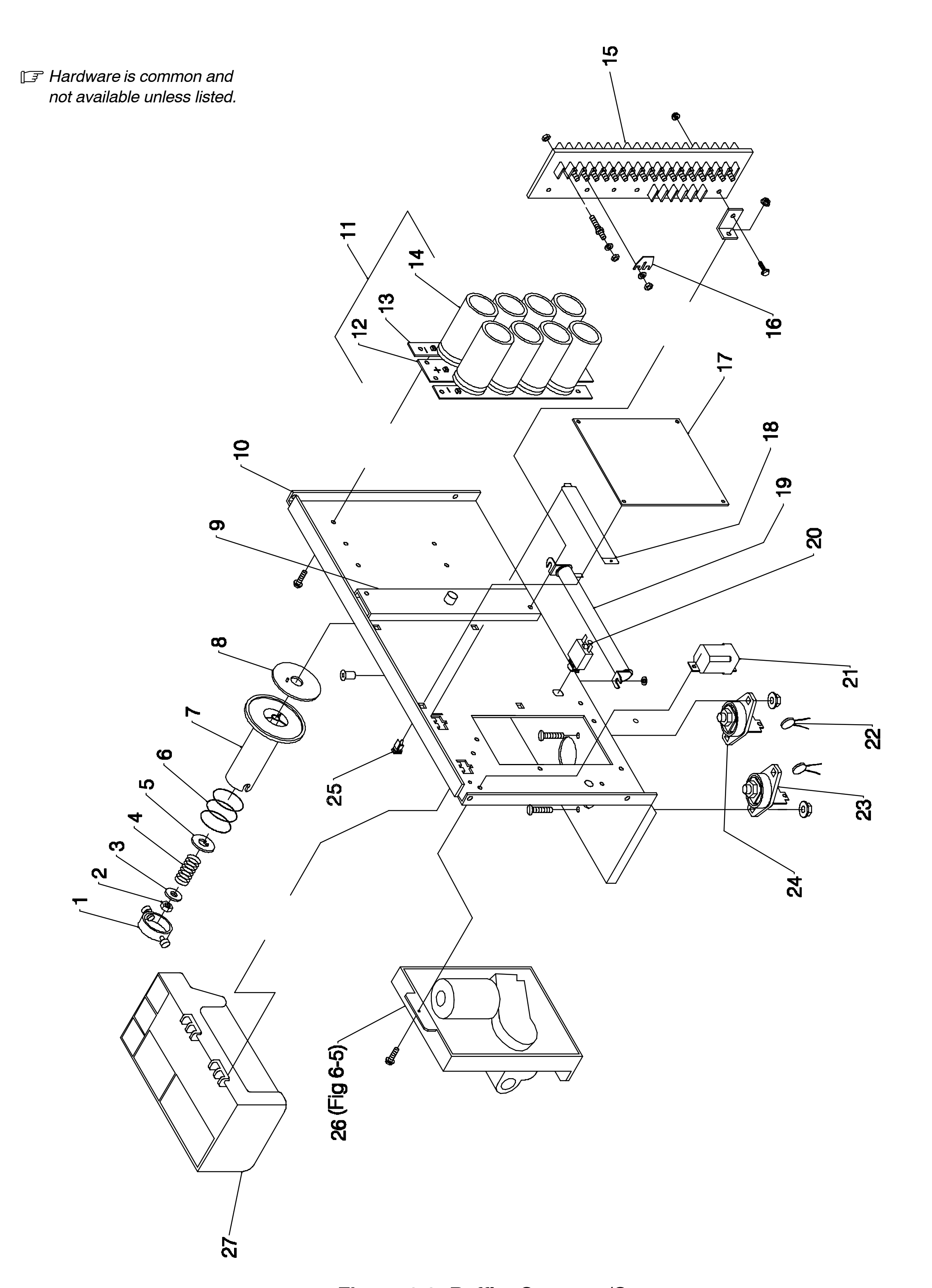
Figure 6-1. Main Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
1	PLG8	008 072	HOUSING RECEPTACLE & SOCKETS	1
2		Fig 6-2	BAFFLE, center w/components	1
3	T1	185 554	TRANSFORMER, pwr main 200/230/460 V	1
3	T1	207 103	TRANSFORMER, pwr main 575 V	1
	TP2	163 266	THERMOSTAT, NO	1
4		Fig 6-6	PANEL, rear w/components	1
5		203 481	PANEL, side LH	1
6		151 187	LATCH, slide flush mtg hole 1.000 wide x 1.500 lg	2
7		+203 480	DOOR, hinged	1
		198 198	LABEL, parameter/polarity	1
8		134 464	LABEL, warning general precautionary	1
9		+206 579	WRAPPER	1
10		187 804	CABLE, pwr 12ft 8ga 4/c	1
11		185 541	BASE	1
12		186 758	WHEEL	2
13		052 692	AXLE, running gear (consisting of)	1
		121 614	RING, retaining ext .750 shaft x .085grv depth	2
14	SR1	211 337	RECTIFIER ASSY, SCR/diode (consisting of)	1
	C7-12	031 689	CAPACITOR, rectifier	6
	SCR1-3	185 830	THYRISTOR, SCR 568A 400V	3
	TP3	171 600	THERMOSTAT, NC	1
	PLG2	115 093	CONNECTOR & SOCKETS	1
	D4-6	185 831	DIODE, rect 450A 200V	3
	D7,8	037 956	DIODE, rect 275A 300V	2
15		209 870	CASTER, swvl 4.00 in X 1.250 in poly−olefin	2
16		Fig 6-4	PANEL, front w/components	1
17	Z1	187 998	STABILIZER,	1
		209 123	REGULATOR/FLOWMETER, 10-50 CFH Argon/CO_2	1
		144 108	HOSE, gas	1
		196 329	CABLE, work 10' w/clamp and boot (consisting of)	1
		130 750	CLAMP, work 350A	1
		600 320	CABLE, weld cop strd No. 1 (order by ft)	10ft
		196 318	COVER, cable btry post blk .75 ID	1
		193 723	LABEL, Miller Millermatic	2
		♦212 492	REGULATOR/FLOWMETER, 10-50 CFH CO_2	1

+When ordering a component originally displaying a precautionary label, the label should also be ordered.
♦OPTIONAL

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

☞ *Hardware is common and not available unless listed.*



Ref. 802 518-A

Figure 6-2. Baffle, Center w/Components

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 6-2. Baffle, Center w/Components (Fig 6-1 Item 2)	
1		058 427	RING, retaining spool	1
2		085 980	NUT, stl hex full .625-11	1
3		605 941	WASHER, flat stl .640 ID x 1.000 OD x 14ga thk	1
4		186 437	SPRING, cprsn .845 OD x .110 wire x 1.500	1
5		057 971	WASHER, flat stl keyed 1.500dia x .125thk	1
6		057 745	SPRING, cprsn 2.430 OD x .090 wire x 2.500	1
7		186 435	HUB, spool	1
8		186 436	WASHER, brake	1
9		177 307	REEL, support	1
		198425	CAP, finishing 1.19 X .37	2
		198426	WASHER, cap	2
10		210 238	BAFFLE, center	1
11		186 998	CAPACITOR ASSEMBLY KIT, (consisting of)	1
12		082 902	STRIP, mtg center capacitor	1
13		185 643	STRIP, mtg capacitors	2
		083 147	GROMMET, scr No. 8/10 panel hole .312sq .500 high	6
14	C6	184 584	CAPACITOR, elctlt 15000uf 45VDC	8
		187 752	INSULATOR, capacitor	1
15	TE1	207 106	TERMINAL ASSEMBLY, pri 3ph one voltage	1
15	TE1	185 537	TERMINAL ASSEMBLY, pri 3ph triple voltage	1
16		038 618	LINK, jumper term bd pri	2
17	PC1	197 475	CIRCUIT CARD ASSY, control	1
	PLG3	131 052	HOUSING RECEPTACLE & SOCKETS	1
	PLG4	131 056	HOUSING RECEPTACLE & SOCKETS	1
	PLG6	115 092	HOUSING PLUG & SOCKETS	1
18		196 318	BRACKET, consumable/tool tray	1
19	R5	119 998	RESISTOR, WW fxd 300W 5 ohm	1
20	CB1	180 912	CIRCUIT BREAKER, man reset 1P 5A 250VAC	1
21	CR2	000 174	RELAY, encl 24VAC 3pdt 10A/120VAC	1
22	C3,5	128 750	CAPACITOR	2
23	POS	097 421	TERMINAL, pwr output red	1
24	NEG	097 416	TERMINAL, pwr output black	1
		185 850	BUSS BAR, shunt	1
		141 567	SHUNT, meter 50V 400A	1
25		134 201	STAND-OFF SUPPORT, PC card	4
26		Fig 6-5	WIRE DRIVE & GEARS	1
27		197 555	TRAY, consumable/tool w/bumper	1

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 6-3. Panel, Front w/Components (Fig 6-1 Item 15)	
1		208 383	LABEL, nameplate	1
2	PC2	197 945	CIRCUIT CARD ASSY, display	1
	PLG10	130 203	PLUG w/SOCKETS	1
	PLG11	131 203	PLUG w/PINS	1
	PLG12	131 204	PLUG w/SOCKETS	1
3		134 201	STANDOFF	4
4		196 801	BRACKET, mtg display board	1
5	C1,2,20	136 735	CAPACITOR, cer disc .1uf 500VDC	3
6	R2,3	208 207	POTENTIOMETER	2
	PLG3	131 052	HOUSING RECEPTACLE & SOCKETS	1
7		208 166	PANEL, front	1
8	S1	128 756	SWITCH, tgl	1
9	RC1	048 282	RECEPTACLE w/SOCKETS	1
10	RC7	190 363	RECEPTACLE w/SOCKETS	1
11		208 167	LABEL, logo	1
12		208 164	PANEL, front bezel	1
13		193 632	NUT, 375-16 .56 hex .34H stl	2
14		207 077	KNOB, pointer 1.625dia push on	2
15		129 524	TERM, frict 250 x 032	1

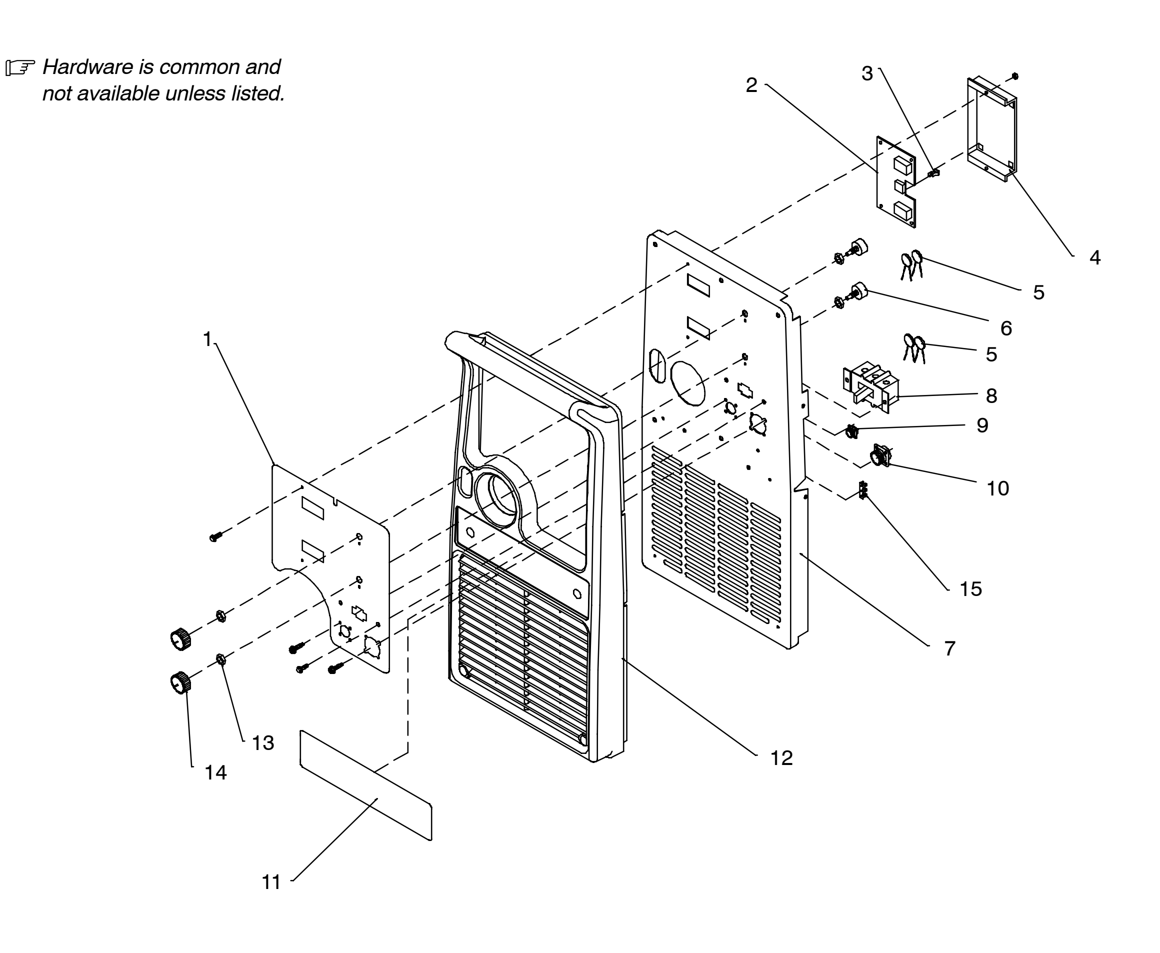


Figure 6-3. Panel, Front w/Components

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

See Table 6-1
Drive Roll & Wire Guide Kits.

☞ *Hardware is common and not available unless listed.*

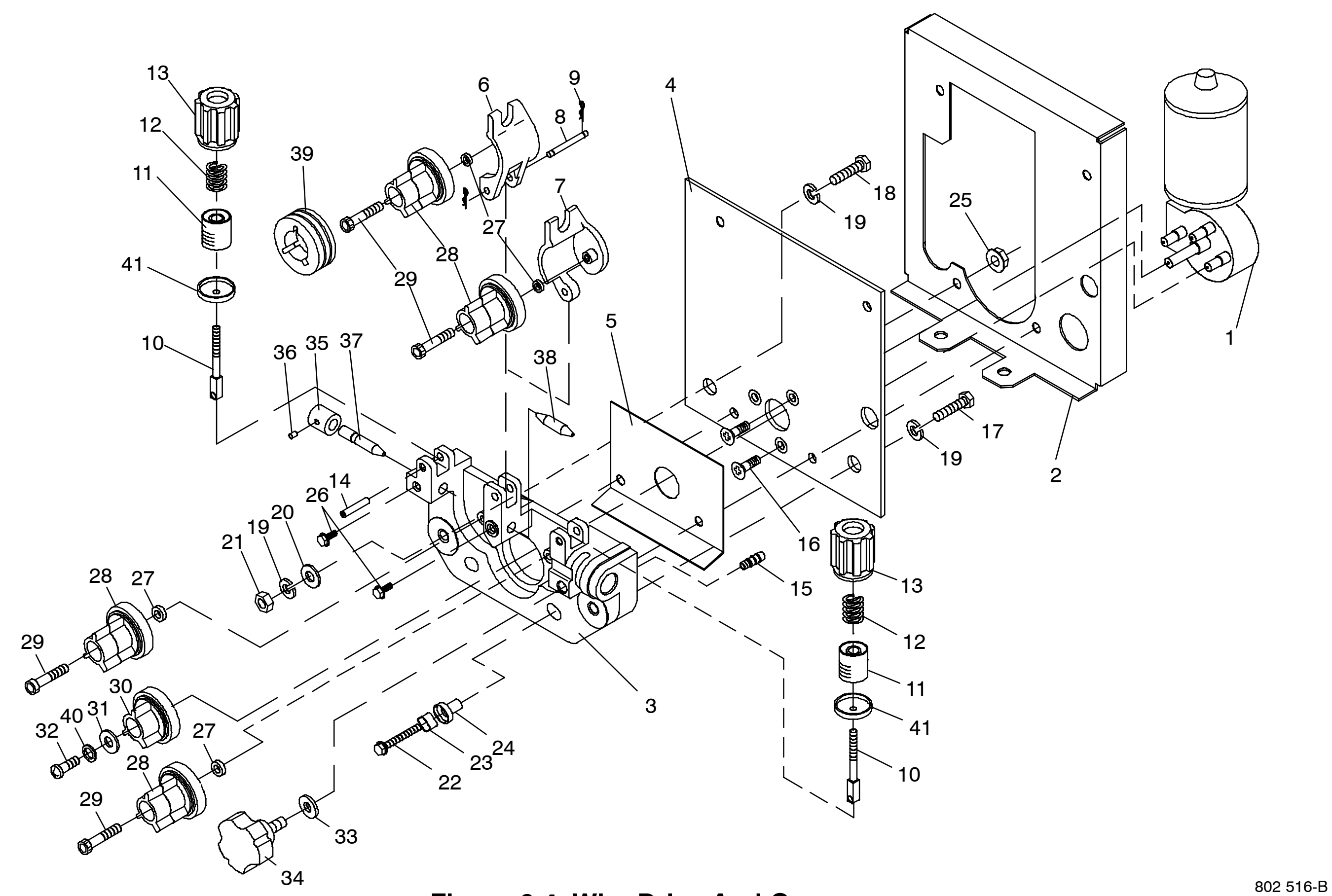


Figure 6-4. Wire Drive And Gears

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 6-4. Wire Drive And Gears (Fig 6-2 Item 27)	
1		173 435	MOTOR, gear 24VDC right angle	1
2		210 240	HOUSING, adapter drive motor	1
3		166 337	HOUSING, adapter gun/feeder	1
4		194 519	INSULATOR, drive housing 4 roll	1
5		194 521	INSULATOR, drive assy	1
6		166 071	LEVER, mtg pressure gear	1
7		166 338	LEVER, mtg pressure gear	1
8		079 634	PIN, hinge	1
9		151 828	PIN, cotter hair .042 x .750	2
10		085 242	FASTENER, pinned	2
11		196 896	CUP, spring	2
12		196 897	SPRING, cprsn .695 OD x .095	2
13		196 895	KNOB, tension	2
14		010 224	PIN, spring cs .187 x 1.000	2
15		079 633	FTG, hose brs barbed nipple 3/1	1
16		195 640	SCREW, M6-1.0 x 16 flathd-phl	3
17		079 240	SCREW, 375-16 x 1.75 hex hd-pln	1
18		601 966	SCREW, 375-16 x 1.25 hex hd-pln g	1
19		602 213	WASHER, lock .380 ID x 0.683 OD	3
20		602 242	WASHER, flat .375 ID x 0.875 OD	1
21		601 872	NUT, 375-16 .56 hex .34h stl	1
22		108 943	SCREW, 250-20 x 1.50 hexwhd .50d	2
23		168 590	BUSHING, insulating	2
24		072 010	WASHER, shldr .316 ID 0.812 OD	2
25		089 800	NUT, 250-20 .44 hex .22h stl	2

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 6-4. Wire Drive And Gears (Continued) (Fig 6-2 Item 27)	
26		602 154	SCREW, 250-20 x .50 hexwhd .50d	2
27		166 072	SPACER, gear	2
28		172 075	CARRIER, drive roll w/components	4
29		602 009	SCREW, 250-20 x 1.25 soc hd-hex	4
30		173 618	CARRIER, drive roll keyed	1
31		195 802	WASHER, flat .175 ID x 0.590 OD	1
32		174 609	SCREW, M4-.7 x 12 fil cheese hd	1
33		604 538	WASHER, flat .344 ID x 0.688 OD	1
34		204 585	KNOB	1
35		*045 127	GUIDE, wire inlet anti-wear	1
36		602 169	SCREW, set #8-32 x .18 cup	1
37		056 193	GUIDE, wire inlet	1
38		056 207	GUIDE, wire intermediate	1
39		189 285	ROLL, drive V-groove .035/.045 wire	4
40		602 241	WASHER, flat .281 ID x .625 OD	1
41		085 244	WASHER, cupped stl .328 ID x .812 OD x .125 lip	2

*Recommended Spare Parts.

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

☞ *Hardware is common and not available unless listed.*

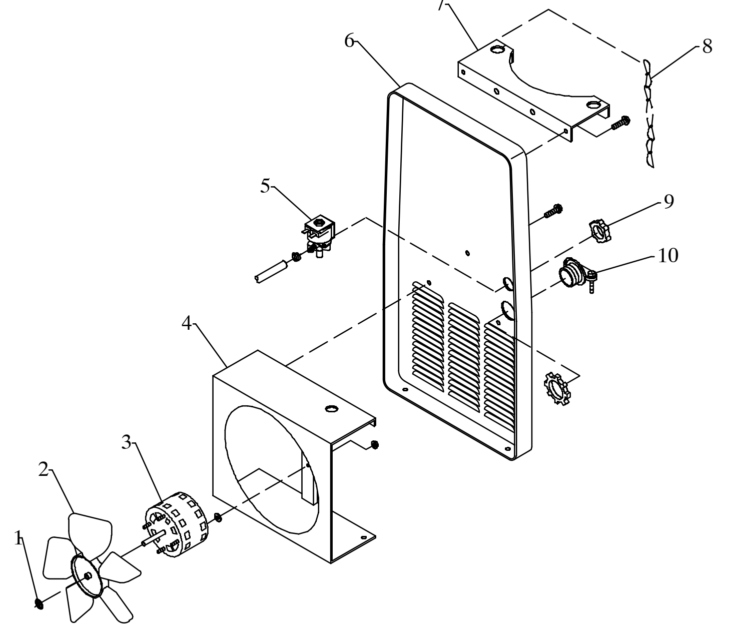


Figure 6-5. Panel, Rear w/Components

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
			Figure 6-5. Panel, Rear w/Components (Fig 6-1 Item 4)	
1		049 399	NUT, speed push-on-type .312 stud .625 OD x .456 ID	1
2		148 809	BLADE, fan 9 in 5wg 34deg .309 bore CCW	1
3	FM1	188 706	MOTOR, fan 230V, 50/60 Hz, 1550RPM .312dia shaft	1
4		203 711	WINDTUNNEL	1
5	GS1	216 396	VALVE, 24VAC 2way custom port 1/8 orf w/frict	1
6		+203 478	PANEL, rear	1
		193 328	LABEL, warning electric shock	1
7		169 654	BRACKET, support tank	1
8		602 387	CHAIN, weldless 2/0 x 27.000 lg	1
9		137 761	NUT, 750NPT 1.31hex .27h nyl blk	1
10		604 102	CONNECTOR, clamp cable 1.000	1

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.

Table 6-1. Drive Roll And Wire Guide Kits



Base selection of drive rolls upon the following recommended usages:

1 V-Grooved rolls for hard wire.
2 U-Grooved rolls for soft and soft shelled cored wires.
3 V-Knurled rolls for hard shelled cored wires.
4 Drive roll types may be mixed to suit particular requirements (example: V-Knurled roll in combination with U-Grooved).

Wire Diameter			Kit No.	Drive Roll		Wire Guide	
Fraction	Decimal	Metric		Part No.	Type	Inlet	Intermediate
.023/.025 in	.023/.025 in	0.6 mm	087 132	087 130	V-Grooved	056 192	056 206
.030 in	.030 in	0.8 mm	046 780	053 695	V-Grooved	056 192	056 206
.035 in	.035 in	0.9 mm	046 781	053 700	V-Grooved	056 192	056 206
.045 in	.045 in	1.2 mm	046 782	053 697	V-Grooved	056 193	056 207
.052 in	.052 in	1.3 mm	046 783	053 698	V-Grooved	056 193	056 207
1/16 in	.062 in	1.6 mm	046 784	053 699	V-Grooved	056 195	056 209
.035 in	.035 in	0.9 mm	044 750	072 000	U-Grooved	056 192	056 206
.045 in	.045 in	1.2 mm	046 785	053 701	U-Grooved	056 193	056 207
.052 in	.052 in	1.3 mm	046 786	053 702	U-Grooved	056 193	056 207
1/16 in	.062 in	1.6 mm	046 787	053 706	U-Grooved	056 195	056 209
.035 in	.035 in	0.9 mm	046 792	132 958	V-Knurled	056 192	056 206
.045 in	.045 in	1.2 mm	046 793	132 957	V-Knurled	056 193	056 207
.052 in	.052 in	1.3 mm	046 794	132 956	V-Knurled	056 193	056 207
1/16 in	.062 in	1.6 mm	046 795	132 955	V-Knurled	056 195	056 209

Ref. S-0025-D

Notes

Notes

Notes



Effective January 1, 2005
(Equipment with a serial number preface of “LF” or newer)

This limited warranty supersedes all previous Miller warranties and is exclusive with no other guarantees or warranties expressed or implied.

Warranty Questions?

Call 1-800-4-A-MILLER for your local Miller distributor.

Your distributor also gives you ...

Service
You always get the fast, reliable response you need. Most replacement parts can be in your hands in 24 hours.

Support
Need fast answers to the tough welding questions? Contact your distributor. The expertise of the distributor and Miller is there to help you, every step of the way.



LIMITED WARRANTY − Subject to the terms and conditions below, Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed.

Miller shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to a North American distributor or eighteen months after the equipment is sent to an International distributor.

1. 5 Years Parts — 3 Years Labor
   * Original main power rectifiers
   * Inverters (input and output rectifiers only)
2. 3 Years — Parts and Labor
   * Transformer/Rectifier Power Sources
   * Plasma Arc Cutting Power Sources
   * Semi-Automatic and Automatic Wire Feeders
   * Inverter Power Sources (Unless Otherwise Stated)
   * Water Coolant Systems (Integrated)
   * Intellitig
   * Maxstar 150
   * Engine Driven Welding Generators **(NOTE: Engines are warranted separately by the engine manufacturer.)**
3. 1 Year — Parts and Labor Unless Specified
   * DS-2 Wire Feeder
   * Motor Driven Guns (w/exception of Spoolmate Spoolguns)
   * Process Controllers
   * Positioners and Controllers
   * Automatic Motion Devices
   * RFCS Foot Controls
   * Induction Heating Power Sources and Coolers
   * Water Coolant Systems (Non-Integrated)
   * Flowgauge and Flowmeter Regulators (No Labor)
   * HF Units
   * Grids
   * Maxstar 85, 140
   * Spot Welders
   * Load Banks
   * Arc Stud Power Sources & Arc Stud Guns
   * Racks
   * Running Gear/Trailers
   * Plasma Cutting Torches (except APT & SAF Models)
   * Field Options (NOTE: Field options are covered under True Blue® for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
4. 6 Months — Batteries
5. 90 Days — Parts
   * MIG Guns/TIG Torches
   * Induction Heating Coils and Blankets
   * APT & SAF Model Plasma Cutting Torches
   * Remote Controls
   * Accessory Kits
   * Replacement Parts (No labor)
   * Spoolmate Spoolguns
   * Canvas Covers

Miller’s True Blue® Limited Warranty shall not apply to:

1. **Consumable components; such as contact tips, cutting nozzles, contactors, brushes, slip rings, relays or parts that fail due to normal wear. (Exception: brushes, slip rings, and relays are covered on Bobcat, Trailblazer, and Legend models.)**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer’s warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MILLER PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Miller’s option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer’s risk and expense. Miller’s option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Miller authorized service facility as determined by Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

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Owner's Record

Please complete and retain with your personal records.

Model Name	Serial/Style Number
Purchase Date	(Date which equipment was delivered to original customer.)
Distributor	
Address	
City	
State	Zip



For Service

Contact a DISTRIBUTOR or SERVICE AGENCY near you.

Always provide Model Name and Serial/Style Number.

Contact your Distributor for:	Welding Supplies and Consumables Options and Accessories Personal Safety Equipment Service and Repair Replacement Parts Training (Schools, Videos, Books) Technical Manuals (Servicing Information and Parts) Circuit Diagrams Welding Process Handbooks To locate a Distributor or Service Agency visit www.millerwelds.com or call 1-800-4-A-Miller
Contact the Delivering Carrier to:	File a claim for loss or damage during shipment. For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.

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